

GILL TREMLETT

COURSE MANAGER GUIDELINES
TRAINING FOR MID-LEVEL MANAGERS
EXPANDED PROGRAMMES ON IMMUNIZATION

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CPHE - CLIC

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INTRODUCTION TO
COURSE MANAGER GUIDELINES FOR TRAINING FOR
MID-LEVEL MANAGERS OF EXPANDED
PROGRAMMES ON IMMUNIZATION

The purpose of this course is to help participants develop the skills they need to manage immunization activities. Each of the modules listed below describes and teaches a major task that must be performed in an immunization programme:

Allocate Resources
Manage the Cold Chain System
Conduct Vaccination Sessions
Conduct Disease Surveillance
Supervise Performance
Provide Training
Evaluate Vaccination Coverage
Ensure Public Participation

As a course manager it is your responsibility to assist participants whenever they have difficulty with the concepts being taught or with the materials themselves. Specifically, for each module you should:

- ensure that each participant understands what is expected of him/her in terms of the skill to be practiced and the way in which (s)he is to work through the materials,
- answer student questions as they occur,
- provide a prompt evaluation of all student work so that correct work is reinforced and misunderstandings are resolved,
- provide additional resources when participants request more information than is provided in the module, and
- ensure that there are no major obstacles to training such as excessive heat or cold, inadequate lighting, etc.

For some modules, you will also need to lead discussions and supervise other group activities. The course manager guidelines for each module will help you perform the tasks listed above. Also included in the course manager guidelines are copies of answer sheets for those exercises which have specific answers. Discussion points are provided for exercises in which there is no single right answer. Work through the module, read the course manager guidelines, and look over the answer sheets and discussion points before participants begin working on the module. In this way, you will be best prepared to respond to participants' questions and to assist them in learning the materials.

COURSE MANAGER GUIDELINES

Allocate Resources

1. Distribute copies of the Introduction booklet (if not distributed previously) and the module.
2. Ask participants to turn to the Glossary on page 40 in the module. Explain that it includes important words from the module and should be referred to as often as necessary.
3. Briefly introduce the module by discussing the importance of planning for the distribution of materiel and supplies. You may wish to review terms such as vaccination coverage objective if you think the terms will be unfamiliar to participants. You may also wish to discuss the flowchart on page 2 of the module before participants begin their individual work.
4. Explain that the module contains many practice exercises. Participants should write their answers in the space or on the worksheets provided after each exercise, and compare their responses with an answer sheet which you will give them.
5. Tell participants you will be available at any time to answer questions.
6. Ask if there are questions.
7. Ask participants to read the Introduction booklet (if they have not already done so) and to begin work on the module.
8. Copies of the answer sheets for Exercises A-E are provided on the following pages. You should have sufficient copies of each answer sheet available for all the participants in your group.
9. Provide each participant with an answer sheet as he completes each exercise, and discuss any differences or problems he had in completing the exercise. Note that for some exercises there is more than one possible right answer.
10. Exercise F is to be completed as a group discussion. Guidelines for this exercise are provided on the last page of this section.

ALLOCATE RESOURCES

ANSWER SHEETS

Worksheet for Exercise A

Health Centre Area	Villages Within Walking Distance of Health Centre		Villages Within One Hour's Travel of Health Centre		Quality of Area Roads
	Map Number	Population	Map Number	Population	
A	1	4,000	5	6,000	1
	2	3,000	8	5,000	
	4	5,000			
	6	2,000			
	9	1,000			
		<hr/>		<hr/>	
	Total: 15,000		Total: 11,000		
B	10	7,000	12	2,000	1
	15	6,000	14	4,000	
		<hr/>		<hr/>	
		<hr/>		<hr/>	
	Total: 13,000		Total: 6,000		
C	18	7,000	19	8,000	1
	20	3,000	23	2,000	
	22	6,000	24	5,000	
	25	8,000			
	26	11,000			
		<hr/>		<hr/>	
	Total: 35,000		Total: 15,000		
D	27	7,000	28	5,000	1
	29	3,000	32	2,000	
	31	4,000	33	4,000	
		<hr/>	34	3,000	
				<hr/>	
		<hr/>		<hr/>	
	Total: 14,000		Total: 14,000		
E	35	10,000	39	4,000	3
		<hr/>	41	2,000	
				<hr/>	
		<hr/>		<hr/>	
	Total: 10,000		Total: 6,000		
F	44	2,000	46	5,000	3
	45	8,000	47	4,000	
		<hr/>	48	5,000	
				<hr/>	
		<hr/>		<hr/>	
	Total: 10,000		Total: 14,000		

SUMMARY OF EVALUATION OF HEALTH CENTRES IN COASTAL REGION

BASED ON FIELD VISIT

Answer Sheet for Exercise B

Figure 4

(Worksheet for ExerciseB)

HEALTH FACILITY	ADEQUATE SIZE OF STAFF	<1 HOUR ACCESS TO VACCINE DELIVERY	COLD CHAIN EQUIPMENT				OUTREACH TRANSPORT AVAILABLE			OUTREACH ACTIVITIES IN PAST	BCG COVER-AGE	CURRENT INVOLVEMENT IN COMPREHENSIVE PRIMARY HEALTH CARE	IMMUNIZATION CAPABILITIES	OUTREACH CAPABILITIES
			Refrigerator	Freezer	Dependable Electricity	Truck	Car	Bicycle						
A	+	+	-	-	-	-	-	-	-	-	35%	-	2	
B	+	+	-	-	-	-	-	-	-	-	55%	+	1	
C	+	+	+	+	+	-	-	+	-	-	82%	+	1	✓
D	+	+	-	-	+	-	-	+	-	-	32%	-	2	✓
E	-	-	-	-	-	-	-	-	-	-	31%	-	3	
F	-	-	-	-	-	-	-	-	-	-	38%	-	3	

Worksheet for Exercise CPOPULATION THAT CAN BE SERVED
USING A FIXED STRATEGY

Area Health Centre	Number of People
A	15,000
B	13,000
C	35,000
D	14,000
<hr/>	
Total:	77,000

POPULATION THAT CAN BE SERVED
USING OUTREACH ACTIVITIES

Area Health Centre	Number of People
C	15,000
D	14,000
<hr/>	
Total:	29,000

3. Where will you install the refrigerator?: Area D health centre^{*}
4. What is the total population you can serve using available resources?

106,000

(Total Population)

* The health centres in Areas C and D are the only ones that have dependable electricity. Area C already has a refrigerator. With the refrigerator the Area D health centre will not need to obtain vaccine from the regional headquarters every day they carry out immunization activities. The staff will be able to store vaccine for several days and hold clinics on some days and carry out outreach activities on others.

Exercise D

The objective given to you at the beginning of these exercises was to vaccinate half of the infants less than one year in age.

You were told that you should assume that if you provided immunization where half the population lived, it would be available to half the infants in the region.

The total population of the region is 230,000. Half of that is 115,000.

1. Can you reach your objective with the resources available to you?
 (Review your results from Exercise C.) No, you can reach only 106,000.
*
Your objective is 115,000.
2. What is the difference between the population you can serve and the population stated in the objective? 115,000 - 106,000 = 9,000.

Verify your answers with a course manager.

* These exercises assume you will be able to vaccinate all of the infants in the areas where you provide immunizations. In fact, it is seldom possible to immunize 100% of the infants in any area. In your own country you will need to make immunization services available to more infants than you hope to immunize.

Exercise E

You found in Exercises C and D that you could not reach your objective with the resources available to you. You found that you need to serve 9,000 more people in order to reach your objective.

Your task for this exercise is to develop a plan for serving an additional 9,000 people which you can present to ask for additional resources.

Many correct responses to this exercise are possible. Some sample correct responses are given below. They are organized according to the four points which you should have covered in your plan.

1. Additional populations could be served at health centres A, E, or F.
 - At health centre A, outreach activities would allow you to reach the population between 5 and 10 kilometres. This would require dependable cold-chain facilities and new transport. An additional 11,000 population could be served in this way.
 - If health centre E had some means of receiving vaccine on a regular basis and an increase in staff time, they could offer vaccinations in village 35, which has a population of 10,000.
 - If health centre F were equipped with adequate staff and non-electric cold-chain equipment and some means of receiving vaccine regularly, it could serve a population of 10,000 which is within 5 kilometres of the centre.
2. The additional resources needed depend on the option selected above. To conduct outreach activities at health centre A, transport would be needed (trucks, cars, or bicycles) and the fuel and repair services to keep them operating. To supply centre E or F with the necessary resources, additional staff would be required. Also needed would be cold-chain equipment or a means of supplying the centre with vaccine on vaccination days.
3. Neither centre can expand activities as desired without the additional resources.
4. If resources are not obtained, then the objective cannot be met.

Course Manager Guidelines for Exercise F

- There are no right answers for this group discussion.
- The list you make and the solutions you find will depend on your group.
- Attempt to involve all the members of the group in the discussion of problems and solutions.
- Encourage the group to describe the problem in detail and to look carefully at the causes of problems before they attempt to find solutions.

COURSE MANAGER GUIDELINES

Manage the Cold Chain System

1. Distribute copies of the Introduction booklet (if this has not already been done) and the module.
2. Ask participants to turn to the Glossary on page 81 in the module. Explain that it includes important words from the module and should be referred to as often as necessary.
3. Briefly introduce the module by discussing the importance of managing the cold chain system. You may wish to discuss the diagram on page 3 of the module before participants begin their individual work.
4. Explain how work on the module will be done.
 - a. All participants will read Section 1.0, "Vaccinator and the Cold Chain," and work through Exercises A-D at the end of Section 1.0.
 - b. Exercise A will be a practical demonstration in which the entire group will participate.
 - c. Exercises B-D ask participants to solve problems that are likely to occur at the vaccinator level of the cold chain system. Participants will work on these exercises individually, consulting with a course manager after completing Exercises B-D or as questions arise. Participants should write their answers in the space provided after each exercise, and compare their responses with the answer sheets which you will give them.
 - d. Each participant will then read Section 2.0 (Health Centre) and work individually through the exercises at the end of the section.
 - e. Participants who work in a district or regional store should also read and complete the exercises in Section 3.0.
 - f. Any participant who is interested can read Sections 4.0 (Central Store) and 5.0 (Airport).
5. Encourage participants to ask questions. Tell them that you will always be available while they are working.

6. Ask participants to read the Introduction booklet (if they have not already done so) and to begin reading the module. Ask them to tell you individually when they are ready to begin Exercise A (p. 16) so that you will know when the entire group is ready.
7. When participants are ready for Exercise A:
 - a. Ask for two volunteers from the group. (If two participants do not volunteer, select two.)
 - b. Designate one volunteer to be the health centre storekeeper and the other volunteer to be a vaccinator going to an outreach site.
 - c. Give the "storekeeper" the samples of vaccine, some of which have expired.
 - d. Give the "vaccinator" the available cold box and/or vaccine carrier.
 - e. Tell the "vaccinator" that (s)he is going to an outreach site today to administer 50 doses of each vaccine.
 - f. Ask the "vaccinator" to pick up the amount of vaccine (s)he needs from the "storekeeper," and to pack that vaccine properly in the cold box and/or vaccine carrier.
 - g. Ask that the other participants remain quiet and not offer assistance.
 - h. When the "vaccinator" has packed the vaccine, check to see if
 - any "expired" vaccine was issued
 - the appropriate amount of vaccine was taken
 - the vaccine was packed properly
 - i. Praise all aspects of the demonstration that the two volunteers have done well.
 - j. Ask other participants what they would have done differently in this situation.
 - k. Demonstrate the proper procedures for obtaining and packing vaccine.
 - l. Answer any questions.

8. Ask participants to complete Exercises B-D. Remind them that you are available to answer any questions. Ask them to consult with you after they have completed all three of the exercises.
9. Copies of the answer sheets for all of the exercises in the module are provided on the following pages. You should have sufficient copies of each answer sheet available for all the participants in your group.
10. Provide each participant with answer sheets after (s)he has completed the exercises for Section 1.0, and discuss any differences or problems (s)he had in completing each exercise. Note that for some exercises there is more than one possible right answer.
11. After you have discussed Exercises B-D with the participant, ask him to read Section 2.0 and to complete the exercises at the end of that section. Remind him that you are available to answer any questions. Ask him to consult with you after (s)he has completed all of the exercises in the selected section. Provide him with the answer sheets for these exercises at that time.
12. After you have discussed Exercises E-I with the participant, ask him to read it and complete the exercises at the end of the section.
13. You may want to conduct a demonstration for your group of various types of cold chain equipment. If so, have such equipment available, and at a convenient time during the module, explain what each piece of equipment is, what it is used for, how to maintain it, etc.

MANAGE THE COLD CHAIN SYSTEM

ANSWER SHEETS

Exercise B - Answers

1.
 - a. Vaccine in that village was left over from use the previous day.
 - b. The vaccine used had been taken out to the field on more than three different occasions.
 - c. The cold box (or vaccine carrier) was not kept in the shade as much as possible.
 - d. Vaccine was diluted with diluent which was hot from being left out in the sun.
 - e. The cold box (or carrier) was not packed properly.
 - f. The ice packs were not frozen solid when packed in the container.
 - g. The vaccine was not kept in a cup filled with ice during the vaccination session.
 - h. Vaccine was kept too long in storage due to lack of stock rotation.
 - i. The vaccine was not shielded from sunlight.
 - j. The vaccine was taken from the cold chain container before it was time to use it.
2.
 - a. If the ice in the container is completely melted, all measles vaccine should be thrown away.
 - b. If vaccine has been taken out to the field three times and not used, throw it away.
 - c. Keep the cold box in the shade as much as possible. If you are outside, place it under a tree.
 - d. Diluent must be refrigerated before being mixed with vaccine.
 - e. Pack the cold box or vaccine carrier properly.
 - f. Make sure the icepacks were in the freezer overnight before using them.
 - g. Place one vial of vaccine in a cup filled with ice when the session begins. If mothers do not arrive, return the vial to the cold box (or carrier) until they come.

- h. Measles vaccine should not be stored more than one month at the Health Centre level.
- i. Make sure the vaccine is shielded from sunlight as much as possible.
- j. Take only 1 vial of vaccine from the carrier at a time, and take that vial out right before you need it.

Exercise C - Answers

1.
 - a. The cold box has cracks in its outside or inside surfaces.
 - b. The rubber seal is broken.
 - c. The lid does not close tightly.
 - d. Too few ice packs were put in the cold box.
 - e. You opened the cold box too often and for too long.
 - f. The paint on the outside surface of the cold box is worn.
 - g. Diluent was hot when put in the cold box.
 - h. The cold box was left in the sun.
 - i. The icepacks were not frozen solid when they were packed.
2.
 - a. Check for cracks after each day's use and repair any cracks that you find.
 - b. Check the rubber seal routinely and replace it if broken.
 - c. Adjust the tension on the latches routinely so the lid closes tightly.
 - d. Icepacks should be put all along the sides and on top of the vaccine.
 - e. Open the cold box only when necessary and for as short a time as possible.
 - f. Paint outside surface white when it becomes dull or worn.
 - g. Diluent should be cool when put in the cold box.
 - h. Do not leave the cold box in the sun.
 - i. Make sure the icepacks were in the freezer overnight before using them.

Exercise D - Answers:

1. a. Your response depends on how far you have to go to reach the outreach site and whether the vaccine was still properly refrigerated when the glass in the flask broke. If there was still ice in the flask when it broke, you might simply leave the vaccine in the flask. If the outreach site is within an hour's travel time, you could continue to the site and conduct the vaccination session as planned, but discard unused vaccines at the end of the session.
- b. If possible, you could return to the health centre for another flask.
2. a. Plastic vaccine carriers are less fragile than flasks and can be less expensive.
- b. Be more careful in carrying flasks in the future.

Exercise E - Answers:

Refer to pages 29-30 in the module for an explanation of the procedure to used to estimate the amount of vaccine you need to collect. The calculations that correspond to each step in the procedure are below.

- a. $5,000 \times 0.03 = 150$ (children under 1 year of age)
- b. $150 \times 1.0 = 150$ (children to be vaccinated this year)
- c. $150 \times 3 = 450$ (doses to be administered this year)
- d. $450 \div 0.75 = 600$ (doses needed this year)
- e. $600 \div 12 = 50$ (doses needed during a one-month supply period)
- f. $40 \times 2 = 80$ (doses used before new supply arrives)
- g. $100 - 80 = 20$ (doses expected to be in stock when new supply arrives)
- h. $50 - 20 = 30$ (doses to collect)

If vaccine comes in 10-dose vials, you will have to collect 30 doses. Note, however, that if vaccinations are held weekly, you will need at least 4 vials or 40 doses.

Exercise F - Answers:

1. There is far too much vaccine in stock. On the average only 70-80 children per month would receive measles vaccine.
2.
 - a. District or regional storekeeper is not monitoring health centre vaccine requests and comparing requests with number of immunizations given.
 - b. Health centre is over-reporting number of immunizations given.
 - c. Actual coverage is much less than the target.
 - d. Physical count of vaccine does not match the stock records.
 - e. Records of vaccinations are not being completed correctly.
3.
 - a. Return excess vaccine to district or regional store.
 - b. Check recording procedures in the field and the vaccine stores.
4.
 - a. Health centre can collect and return its empty vials to the district or regional store as proof of vaccine usage.
 - b. Once a month, health centre should make a physical count of vaccine in stock and compare with the records.

Exercise G - Answers:

<u>Likely Causes</u>	<u>Solutions</u>	<u>Preventive Measures</u>
1. Frosted up	Defrost the refrigerator/ freezing compartment.	Defrost periodically.
2. Glass chimney not fitted into position	Shift tank until burner and chimney are properly positioned and fit tightly under the flue.	Whenever tank has been moved, always make sure it is placed back in position so that chimney fits tightly under flue.
	or Move vaccines to a cold box, lay refrigerator on one side and check tank mounting rail alignment. If rails have been bent, they can be straightened with firm pres- sure, not with a hammer.	Be sure that nothing on floor hinders proper placement of tank.
	or Rail mountings are rusted through. Move vaccine to another store and call technician to renew rails.	
3. Flue dirty	Clean flue with flue brush or cloth with a string attached.	Clean flue at least once a month and ensure flame is burning evenly all the time.
4. Burner lighted incorrectly	Extinguish flame, trim wick and relight burner. Remove metal collar before lighting.	Read lighting and main- tenance instructions carefully.
5. Fuel too dirty or no fuel	Rinse out tank with clean kerosene and empty. Refill with clean kerosene.	Clean tank and check fuel grade and level frequently.
	or Move vaccines to another store until clean supplies of fuel can be found.	Supply funds for local purchase of fuel. Supply spare can for keeping fuel.
6. Door not closing properly	Clean seal and remove obstruction to closing.	Make sure door is tightly closed at all times.
	or Remove door seal and renew, or shift hinge position.	Last person to leave building at end of day must check to see that door is closed tightly.
7. Expired wick or broken glass/ burner	Renew burner, wick or glass.	Improve spare parts distribution.
	or Move vaccine to another store until spare parts arrive.	

Likely CausesSolutionsPreventive Measures

8. Refrigerator not placed level

Use plumb line or plate of water on freezer tray to check it is secure in level position. Raise end as needed.

Check that refrigerator is level once a week.

9. Baffle missing

Look for baffle; it has probably been left out after flue cleaning.

Be sure to replace baffle after each flue cleaning.

10. Location too draughty

Change location or protect from draughts.

11. Location too hot

Move refrigerator to a cooler place and stand it away from the wall.

Make sure refrigerator is in coolest available location.

12. Air lock formed

Move vaccines to a cold box and turn refrigerator slowly through 360°.

Flame turned too high or aircraft fuel being used - stop using it.

13. Interior wall

Move vaccines to cold box or another store and wait for a replacement.

Never use sharp objects to clean ice from interior walls.

Exercise H - Answers:

1. Transfer the measles, polio, and DPT vaccine into the cold box sandwiched between the three cold packs. The cold box should have a cold life of 2 days, sufficient to go to the regional capital for fuel. Smallpox, BCG, and Tetanus vaccines can easily withstand peak daytime temperatures of +25°C, so they can be left in the refrigerator.

2. Why did the fuel shortage occur? Was there inadequate checking of the fuel level or no standby fuel supply?

Why the apparent surplus of vaccine?

Why were only 3 of the 6 half-litre cold packs (1/3 of the gross internal cold box volume) in the freezer?

Was anyone assigned specifically to look after the refrigerator and inspect fuel stocks regularly?

3. If fuel shortages often occur in the village, a larger fuel stock should be maintained for the refrigerator. Perhaps an emergency fuel supply centre could be found.

As many cold packs as possible should be kept in the freezing compartment all the time; the storekeeper should be briefed on this.

Request the regional store not to issue excessive vaccine to the health centre and make sure that information on usage and stocks is provided by the health centre to the regional store.

Exercise I - Answers:

The following are some acceptable answers:

1. Request a partial delivery and make arrangements to receive balance later when it is available.
2. Borrow vaccine from a nearby health centre.
3. Offer to go to regional store to collect vaccine.
4. Obtain commitment to a new delivery date and reschedule immunization work to minimize disruption of work.

Exercise J - Answers:

Using the steps in section 2.1, pp. 21-27:

$$2.1.1: 125,000 \times 0.03 = 3,750 \text{ (children under 1 year of age)}$$

$$2.1.2: 3,750 \times 0.80 = 3,000 \text{ (children to be vaccinated this year)}$$

$$2.1.3: 3,000 \times 1 = 3,000 \text{ (doses to be administered this year)}$$

$$2.1.4: 3,000 \div 0.75 = 4,000 \text{ (doses needed this year)}$$

$$2.1.5: 4,000 \div 4 = 1,000 \text{ (doses needed during a 3 month supply period)}$$

$$2.1.6 \quad 1,000 - 300 = 700 \text{ (doses to collect, including enough for a reserve)}$$

If vaccine comes in 10-dose vials, you can collect 700 doses. If it comes in 15-dose vials, you will collect 705 doses.

Exercise K - Answers:

1. a. Sharp drop in vaccine usage by health centre.
b. Health centre may be over-reporting vaccine usage and thus asking for more vaccine than it needs.
c. Health centre may not understand how to calculate vaccine needs.
d. Health centre may have received more vaccine than it requested.
e. Actual coverage is much less than target.
f. Records of vaccinations are not being completed correctly.
2. Arrange to use vaccine about to expire first. Excess vaccine and vaccine that cannot be used before it expires should be returned to district or regional store and redistributed.
3. a. District or regional storekeeper should recalculate the health centre vaccine requirement, and retrain health centre staff in how to calculate vaccine needs. He should also closely monitor health centre vaccine requests, including balance on hand, usage during last supply period, and present request.
b. Health centre should return empty vials to district or regional store as proof of vaccine usage.

Exercise L - Answers:

Alternatives in order of preference:

1. Arrange to have the supply period shortened so that vaccine deliveries can be more frequent.
2. See if cold storage space can be obtained. Perhaps commercial businesses or private individuals could provide additional space.
3. Inform regional health officials that regional immunization activities cannot be expanded until regional store facilities are increased.
The start of the expanded activity will have to be delayed.
4. See if Central Stores could arrange to supply some of the health centres directly without going through the Regional Store.

Exercise M - Answers

1. Every vaccine storage facility should always have an emergency plan prepared far in advance so that quick, effective action can be taken in the event of a power failure. This plan should include a list of other refrigerator facilities that can be used in case of emergency and a list of repairmen who can be called upon as needed.
2. If the power company tells you that electricity will be restored within 2 hours, lock the refrigerator or freezer doors and do not open them until electricity is restored. Vaccines can be left in the refrigerator for up to 2 hours if the door is left closed. Vaccines in the freezer should be safe for at least 12-24 hours or until ice packs have melted completely.
3. If the power company tells you that electricity will not be restored within 2 hours, remove vaccines from the refrigerator and freezer. Pack them in cold boxes. Transport them to previously identified places where they can be kept safely. If storage space for a few days is not available locally, you may have to transport vaccine to other regions or even back to the central store. When electricity is restored, wait until the proper storage temperature is reached before placing vaccines inside units.

COURSE MANAGER GUIDELINES

Conduct Vaccination Sessions

1. Distribute copies of the Introduction booklet (if this has not already been done) and the module.
2. Ask participants to turn to the Glossary on page 87 in the module. Explain that it includes important words from the module and should be referred to as often as necessary.
3. Explain how work on the module will be done:
 - a. Each participant will read the module, working through Exercises A and B according to the instructions in the module. Participants should write their answers in the spaces or on the worksheets provided after these exercises, and compare their answers with the answer sheets which you will give them.
 - b. Exercises C and D are practical exercises which the participants will do as a group. When it is time to do these exercises, you will give them instructions on what to do.
4. Tell participants that you will always be available while they are working. Encourage them to ask questions.
5. Ask participants to read the Introduction booklet (if they have not already done so) and to begin reading the module. Ask them to do Exercise A and then bring their work to you.
6. Copies of the answer sheets for Exercises A and B are provided for you with these guidelines. You should have sufficient copies of each answer sheet available for all the participants in your group.
7. When a participant has completed Exercise A:
 - a. Give him/her the answer sheets for the exercise and discuss his/her answers to ensure that (s)he:
 - understands how to do the calculations
 - can plan a practical and effective vaccination sessions schedule

- lists several different kinds of obstacles rather than several examples of the same kind of obstacle (e.g., a flat tyre, an overheated radiator, and a broken fan belt are all examples of vehicle breakdown).
 - b. Explain that these are examples of possible vaccination sessions schedules, obstacles, and precautions, and that there are other correct answers.
8. When all participants have finished Exercise A, you may wish to have a group discussion about the exercise.
 9. Ask the participants to read Section 2.0 (pages 30-33) and to do Exercise B.
 10. When a participant has completed Exercise B, give him the answer sheets and discuss his answers. Explain that the answer sheets are just examples and that his diagram and answers do not have to match these.
 11. When all participants have completed Exercise B, the group will be ready for Exercise C, which is a practical exercise in preparing a vaccination site.
 - a. Ask for two volunteers or select two participants. Tell them to pretend that the classroom is their health centre. Their task is to arrange the furniture in the "health centre" for a vaccination session. They should show entrances and exits and should set up the stations they will need for the number of vaccines and children they expect.
 - b. After these participants have finished arranging the "health centre," ask them to explain to the group how mothers and children will move through the vaccination area and what will be done at each station.
 - c. Ask the other participants if they have questions or comments about the arrangement. Ask them if they would have organized the vaccination area differently, and if so, why.
 12. When the group finishes Exercise C, tell them to begin reading Sections 3.0 through 10.0 (pages 37-75). Remind them that you will be available to answer questions as they read. Ask the participants to tell you

individually when they are ready to begin Exercise D so you will know when the entire group is ready. Participants who reach Exercise D first may wish to read the job descriptions in Part II and the Annexes while they wait for the other participants.

13. Exercise D will be a practical exercise in which the participants will practice some of the skills they have learned in this module. Ideally, this exercise should be carried out with children who need immunizations. This could be done in a health centre if you get permission to have course participants work there. Or you could arrange to have some children come to the course site to receive their immunizations. If it is not possible to work with actual children, you should ask some participants to pretend that they are parents bringing their children to be vaccinated.
 - a. Ask for two volunteers or select two participants. Ask them to demonstrate to the group how to clean and sterilize vaccination equipment. Ask the participants to explain what they are doing while they do it. After the demonstration, ask the group if they would clean and sterilize the vaccination equipment any differently, and if so, why.
 - b. Ask another participant to assume that the other participants are a group of mothers (unless there are actual mothers there) and to educate them about immunizations. Ask other members of the group to describe how they would educate mothers any differently.
 - c. Have another participant demonstrate how to screen children and record information obtained on actual vaccination cards. If actual children are not present, ask the participant to show how (s)he would screen a child who had no vaccination card, and also a child who had a card and had received some (but not all) of his vaccinations. Ask the other participants if they have questions or comments about screening.
 - d. Now ask two other participants to demonstrate how to prepare vaccine and vaccination equipment. Ask the participants to explain what they are doing as they do it. After they finish, ask the group if

they would prepare the vaccine and vaccination equipment any differently, and if so, why.

- e. Have at least two participants (or more if you have many children to be vaccinated) administer the vaccines. If there are no children present, participants can practice giving injections to each other. Ask other group members if they have any questions or comments.
 - f. Have one participant perform necessary follow-up activities for children and mothers. Ask other group members for questions or comments.
 - g. Ask another participant to destroy opened vaccines and record types and quantities used. Ask other participants if they have any questions or comments, either about this step or about any other part of conducting a vaccination session.
14. Remind the participants that this module presents one way to conduct a vaccination session and that they can adapt the procedure to meet their needs.

CONDUCT VACCINATION SESSIONS

Answer Sheets

Conduct Vaccination Sessions
Answers for Exercise A

Steps 1 and 2

Village	1	2	3	4	5	6
	Population	$\times 0.03$	$\div 12$	$\times 4$	$\div 10$	Number of Sessions to Schedule
Example: X	3,000	90	7.5	30	3	1 every 2 weeks
A	26,000	780	65	260	26	1 per day
B	5,000	150	12.5	50	5	1 per week
C	1,000	30	2.5	10	1	1 per month
D	2,000	60	5	20	2	1 every 2 weeks
E	9,000	270	22.5	90	9	2 per week
F	7,500	225	18.75	75	7.5 (or 8)	2 per week
G	500	15	1.25	5	0.5	1 every 2 months

Step 3

On the following page are sample vaccination sessions schedules. The participants' schedules need not necessarily match these, but there must be the correct number of sessions for each village.

(Answers for Exercise A, continued)

VACCINATION SESSIONS SCHEDULE			
Village A Health Centre			
Day	Morning	Afternoon	Evening or Night
Sunday			
Monday	Vaccination	Outreach	
Tuesday	Vaccination	Outreach	
Wednesday	Vaccination	Outreach	
Thursday	Vaccination	Outreach	
Friday	Vaccination	Outreach	
Saturday	Outreach	_____	

VACCINATION SESSIONS SCHEDULE			
Outreach Activities for Village A Health Centre			
Village or Vaccination Site	Day	Time	Person Responsible
B	Every Wednesday, measles on first Wednesday each month*	Afternoon	
C	First Saturday of each month, measles every other month	Morning	
D	Second & fourth Saturday of every month, measles second Saturday each month	Morning	
E	Every Monday & Thursday, measles first Monday each month	Afternoon	
F	Every Tuesday & Friday, measles first Tuesday each month	Afternoon	
G	Third Saturday every other month, measles at each session	Morning	

*If the number of children who come for vaccination at each session is small, it may be desirable not to schedule measles vaccine at every session. See page 12 of the module for an explanation.

(Answers for Exercise A, continued)

Step 4

Following are examples of possible obstacles which could prevent vaccination sessions from being conducted as scheduled:

- (1) The monthly delivery of vaccines to the health centre is late.
- (2) The vehicle breaks down on the way to Village G.
- (3) Rumors of reactions to the vaccines keep mothers from bringing their children to the sessions.
- (4) Over half the workers at the health centre are ill and cannot come to work.
- (5) Too few children are coming for the scheduled sessions.
- (6) Too many children are coming for the scheduled sessions.
- (7) Mothers are bringing children to the health centre for vaccination on the wrong days.
- (8) Health centre staff are preoccupied with treating sick patients and do not take time to perform vaccinations.
- (9) The health worker assigned to do outreach activities complains that he has a harder job than the other staff members and threatens to quit.
- (10) Mothers complain that they must wait too long at the health centre before their children are vaccinated.

Step 5

Following are examples of precautions which could be taken to prevent the problems which might arise from some of the obstacles above:

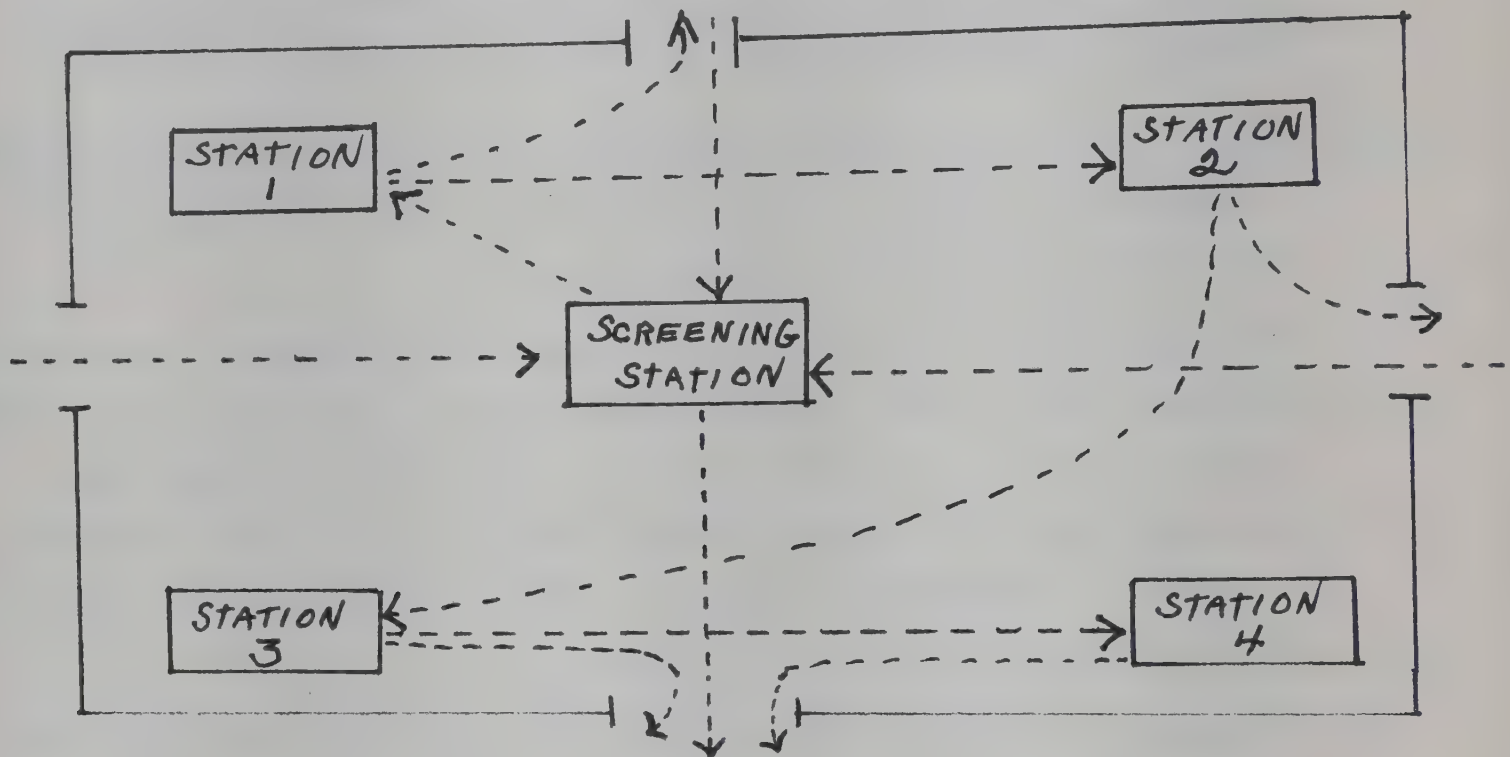
- (1) Reserve enough vaccine for at least one session so that you can follow your schedule even if the regular delivery of vaccines is delayed.
- (2) If the vehicle breaks down on a road which is a bus route, you can take the bus to the village. Make arrangements in advance to borrow vehicles or bicycles in case of vehicle breakdowns.
- (3) Fully explain to the mothers who bring their children for vaccination the kinds of reactions their children might have and what they should do about the reactions. Explain that the reaction

means the vaccine is working and the children will be protected from the disease. If the mothers understand this, they will not worry if their children have reactions to the vaccines and other mothers will not be afraid to bring their children to be vaccinated.

- (4) Avoid scheduling vaccination sessions for so many children that you will not be able to vaccinate them all if there are fewer vaccinators than planned.
- (5 & 6) Use the most up-to-date population figures possible in calculating target populations. Check figures with local officials before making the vaccination sessions schedule.
- (7) Put signs and posters telling the days and times when vaccination sessions will be held in the health centre, in stores, and in other public places. Tell all mothers who come to the health centre for any reason when vaccination sessions will be held. Ask local leaders to announce the days and times of the vaccination sessions and to encourage mothers to attend.
- (8) Explain to the staff that if they will take the time to vaccinate children who are well, the children will not get the diseases, the staff will not have to treat them, and the children will not die.
- (9) Rotate the assignments so that every staff member has a turn doing all the tasks.
- (10) Ensure that the vaccination stations are properly organized and that all equipment is in place before the time the session is scheduled to begin.

Answers for Exercise B

The following diagram is an example of one way a vaccination session might be organized. Participants' diagrams do not have to match this diagram. There is no single correct answer for this exercise.



In a room such as the one above, a mother could easily get confused, go in the wrong direction, and leave unnoticed before her child receives all the vaccinations he is supposed to receive.

During the vaccination session, one door should be the entrance, another door should be the exit, and the two other doors should be locked. The screening station should be near the entrance. The vaccination stations should be placed so that mothers do not become confused about where to go next. An exit station should be placed near the exit.

COURSE MANAGER GUIDELINES

Conduct Disease Surveillance

1. Distribute copies of the Introduction booklet (if this has not already been done) and the module.
2. Ask participants to turn to the Glossary on page 71 in the module. Explain that it includes important words from the module and should be referred to as often as necessary.
3. Explain how work on the module will be done:
 - a. Each participant will read PART I: HEALTH CENTRE, and work through Exercises A through E.
 - b. Each participant will then determine if PART II: REGION is relevant to his/her job. If so, (s)he will read PART II and work through Exercises F and G.
4. Tell participants that you will always be available while they are working. Encourage them to ask questions.
5. Ask participants to read the Instruction booklet (if they have not already done so) and to begin reading the module. Ask them to complete Exercises A and B and then bring their work to you.
6. Copies of the answer sheets for the exercises included in this module are provided for you. You should have sufficient copies of each answer sheet available for all participants in your group.
7. When a participant has completed Exercises A and B:
 - a. Give him/her the answer sheets for these exercises and discuss his/her answers.
 - b. Ask the participant to read Section 3.0, to work through Exercises C and D, and to inform you when (s)he has completed Exercise D.
8. When a participant has completed Exercises C and D, give him/her the answer sheet for these exercises and discuss his/her answers.

9. Ask the participant to read Sections 4.0 through 8.0, pages 32 through 40, and do Exercise E.
10. When a participant has completed Exercise E, give him/her the answer sheet to that exercise and discuss his/her answers.
11. Ask each participant to read the introduction to PART II: REGION (page 43) and to determine if PART II is relevant to his job.
12. Tell participants who decide not to do PART II that you hope the module will be helpful to them in conducting disease surveillance. Tell these participants that they may leave or use this time to look at resources (such as disease charts or graphs, regular surveillance reports, reports of findings of investigations, or newsletters), if they are available, or to talk to other course managers, technical experts, or participants.
13. Ask participants who decide to do PART II to read Section 1.0 (pages 44 - 50), to work through Exercise F, and then to bring their work to you.
14. When a participant has completed Exercise F:
 - a. Give him/her a copy of the answer sheet for that exercise and discuss his/her answers.
 - b. Ask the participant to read Sections 2.0 through 5.0 (pages 56 - 62) to do Exercise G, and to bring his/her work to you when (s)he has completed the exercise.
15. When the participant has completed Exercise G, give him/her a copy of the answer sheet for the exercise. Explain that these are just examples of items which might be included in a newsletter and kinds of people who might receive the newsletter and that there are other correct answers.
16. Ask the participant to finish reading the module. Tell the participants that you hope the module will be helpful to them in conducting disease surveillance.

CONDUCT DISEASE SURVEILLANCE

ANSWER SHEETS

Conduct Disease Surveillance

Answers for Exercise A

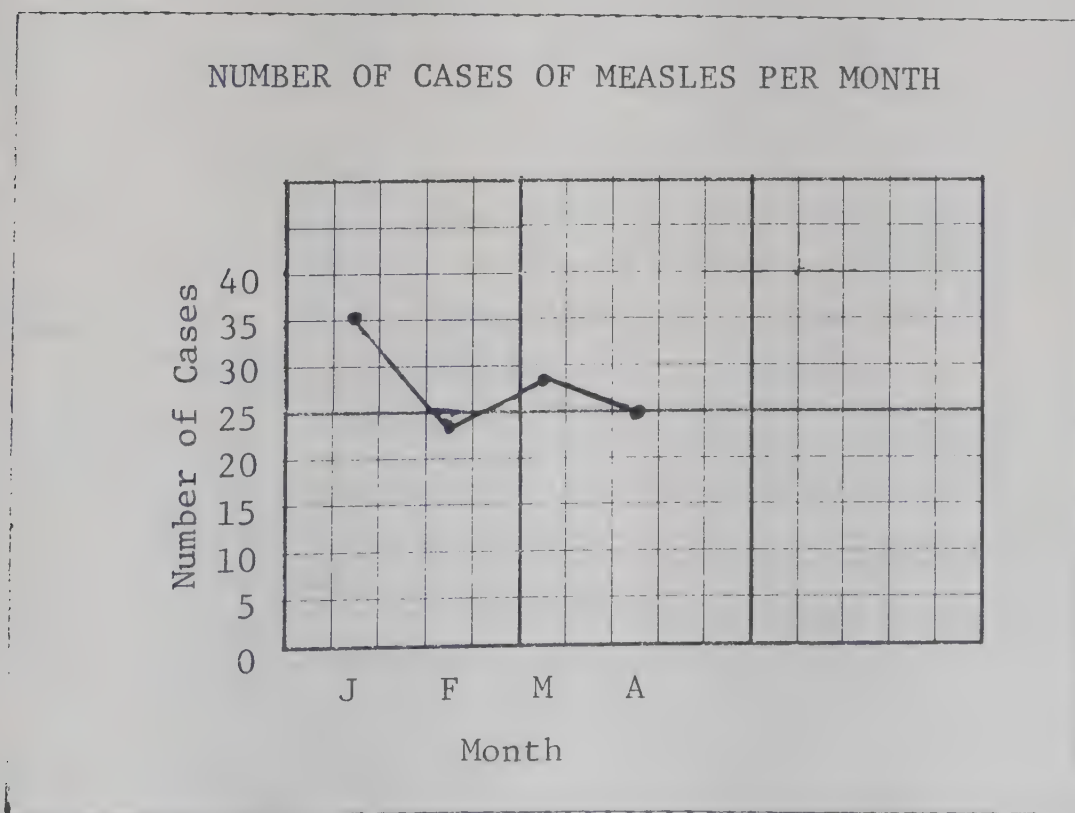
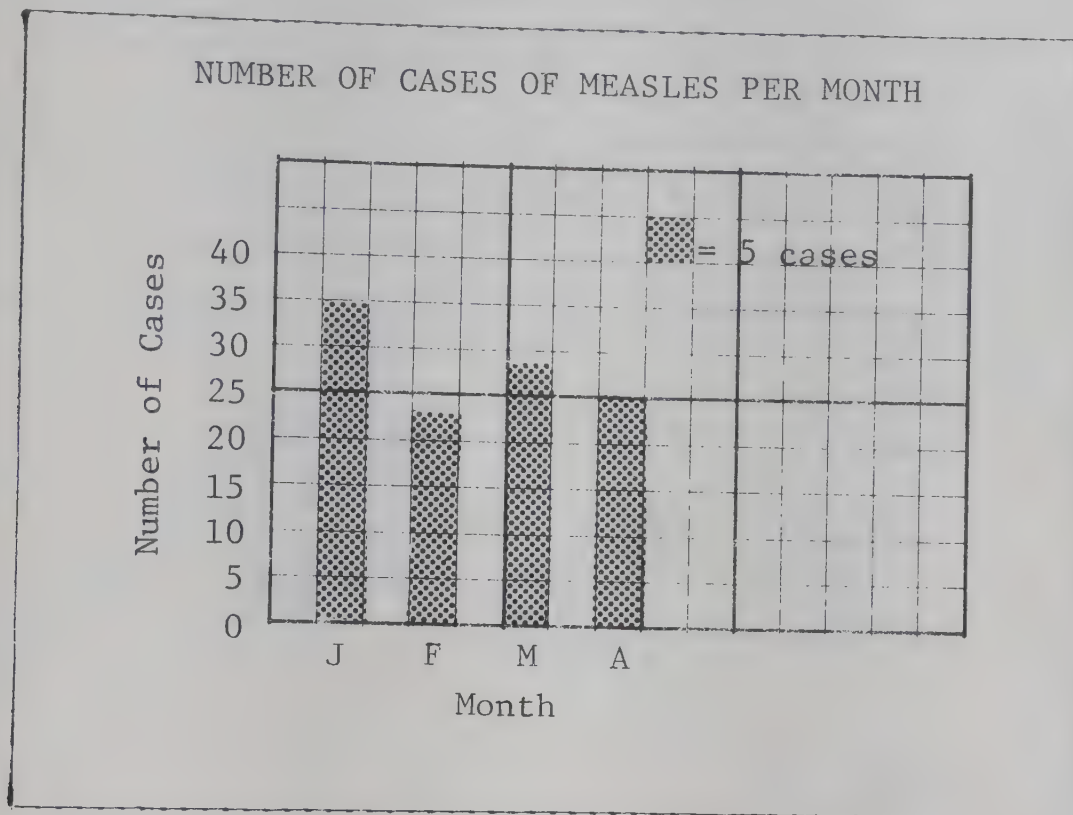
NUMBER OF MEASLES CASES: APRIL

2/4	3/4	4/4	5/4	6/4	7/4
<u>11</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>
9/4	10/4	11/4	12/4	13/4	14/4
<u>111</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>11</u>	<u>0</u>
16/4	17/4	18/4	19/4	20/4	21/4
<u>1</u>	<u>0</u>	<u>11</u>	<u>0</u>	<u>11</u>	<u>1</u>
23/4	24/4	25/4	26/4	27/4	28/4
<u>1</u>	<u>11</u>	<u>11</u>	<u>0</u>	<u>1</u>	<u>0</u>
30/4					
<u>1</u>					

Total number of cases: 25

(Answers for Exercise A, continued)

Participants may draw either a chart or a graph.



AREA SERVED
BY VILLAGE A
HEALTH CENTRE

1.

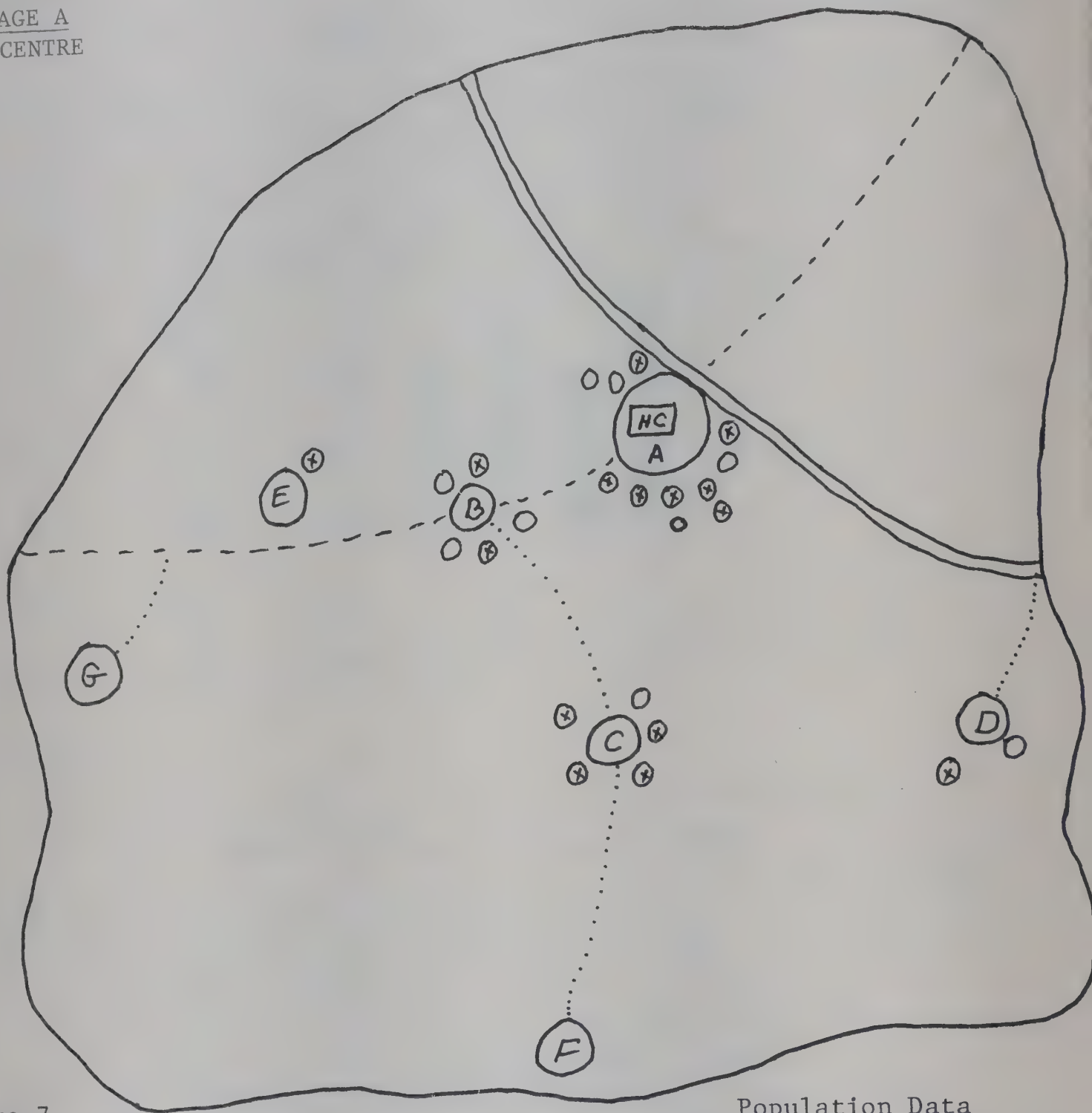
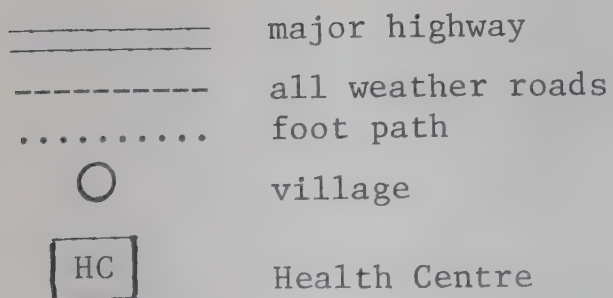


Figure 7.



5KM

Population Data	
Village A	5,000
Village B	2,500
Village C	1,500
Village D	600
Village E	700
Village F	500
Village G	800
Rural Population	5,000
Total Population	16,600

(Answers for Exercise B, continued)

2. ● Yes, there probably were cases of measles and pertussis in Villages F and G during March.
- Those cases probably were not reported because the villages are too far from the health centre for mothers to bring their children for treatment, and health coverage is not good enough for outreach health workers to get to those villages regularly.

Answers for Exercise C

1. There seems to be a cycle of epidemic and non-epidemic years, and a general decreasing trend in incidence.
2.
 - a. Yes. The peak season occurs from March to June.
 - b. Yes. 1972, 1975, and 1978.
 - c. Yes, it appears that the immunization programme has been effective. There was an epidemic in 1978, but the number of cases in 1975 was 565, and the number in 1978 was 440, a difference of 125. The immunization programme seems to have prevented many cases of measles, even though it was not successful in preventing the epidemic entirely.

Answers for Exercise D

Following are examples of possible explanations for the case counts. The group should suggest all of these explanations and possibly others also.

CASE COUNT	POSSIBLE EXPLANATIONS
<ul style="list-style-type: none"> ● 60 	<ul style="list-style-type: none"> - The vaccination programme has been less successful recently. - Cases of other diseases are being diagnosed and reported as measles. - There is more complete diagnosis and reporting than in 1977. - 1978 is an epidemic year.
<ul style="list-style-type: none"> ● 30 	<ul style="list-style-type: none"> - No significant changes have occurred in the vaccination activities or in surveillance.
<ul style="list-style-type: none"> ● 10 	<ul style="list-style-type: none"> - The vaccination programme has been more successful. - Cases of measles are being diagnosed and reported as cases of other diseases. - There is less complete diagnosis and reporting than in 1977.

Answers for Exercise E

1. I would try to find out the reasons for the high dropout rate:

Are vaccinations given at a convenient time and place?

Are mothers properly informed about the need to return?

Are mothers informed when and where to return?

Are mothers informed about side effects?

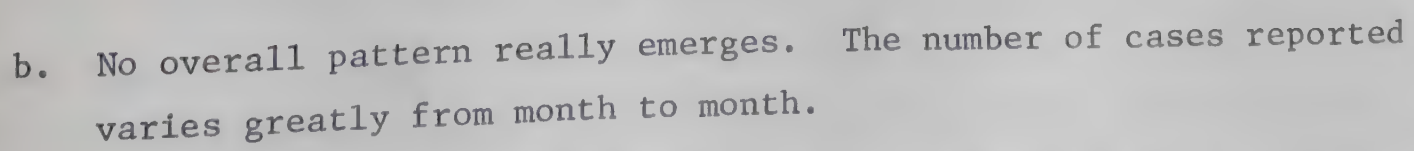
Are services provided as promised?

Ask the mothers why they did not come for a second and third dose.

I would then take action to correct the specific problems I found.

2. I would check on vaccination techniques, the way vaccines are handled, and record keeping. If the problem is not in one of these areas, then there is probably a break in the cold chain before the vaccine reaches my health centre. I would contact my supervisor.
3. I would find out whether it is midwives, mothers, or other persons who are putting cow dung on the cord and carefully explain why this should not be done.
4. I would first find out whether the cases are occurring in the children who were vaccinated at 6 months of age. Since most children still have temporary protection from measles from their mothers at 6 months, their bodies do not respond to the vaccine, and when the temporary protection is gone, the children can get measles. If the children who were vaccinated at 6 months get measles, it is because they were vaccinated too young, and I would work with my supervisor to try to have the recommended age for measles vaccination changed to 9 months. If the problem does not seem to be that children are vaccinated too young, then I would take the same actions as in question 2.

1. a.

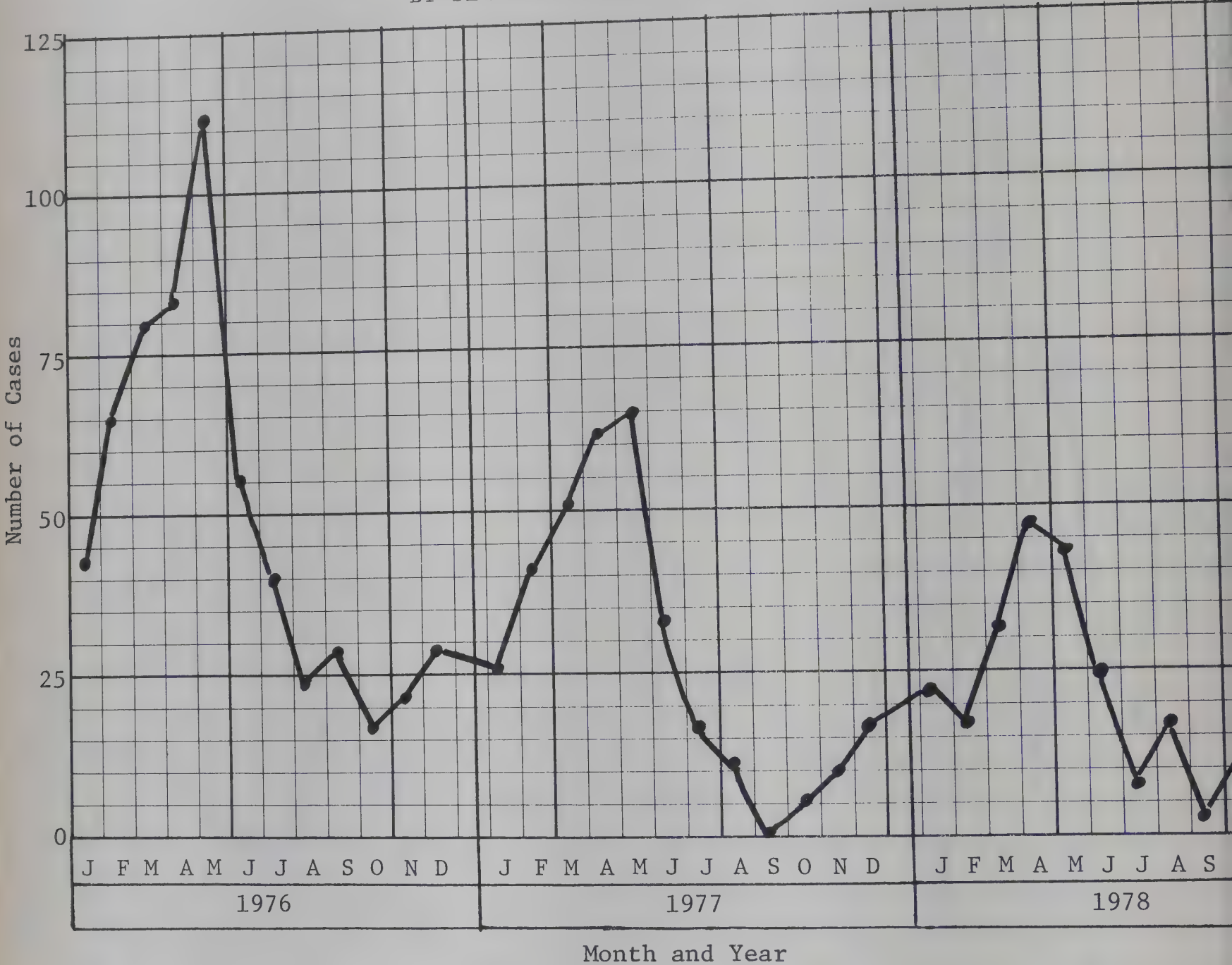


11

(Answers for Exercise F, continued)

b.

NUMBER OF CASES OF MEASLES REPORTED PER MONTH
BY SENTINEL SITES, 1976-1978



c. There is a seasonal pattern, with the largest number of cases occurring in April or May each year. There were fewer cases in the second half of the year than in the first half.

3. The second graph, NUMBER OF CASES OF MEASLES REPORTED, SENTINEL SITES, REGION A, 1976-1978, probably reflects the measles problem in the region more accurately than the graph for the entire region. The graph based on sentinel site data follows the normal seasonal pattern for measles, so it appears that sentinel site data are more accurate than data from other sources.

Answers for Exercise G

Following are examples of items which might be included in a newsletter and examples of the kinds of people who might receive the newsletter. You may list other items and kinds of people in addition to these.

1. Items which might be included in a newsletter:

- number of cases of target diseases reported during recent reporting periods and for the year
- comparison of number of cases of target diseases reported during recent reporting periods and for the year with the number reported during the same periods of the previous year
- discussion of progress being made in preventing cases of target diseases
- discussion of problems common in health centres
- news about new vaccines, equipment, procedures, etc.
- number of vaccinations administered of each type during recent reporting periods and for the year
- comparison of number of vaccinations administered of each type during recent reporting periods and for the year with the number administered during the same periods of the previous year

2. Kinds of people who might receive the newsletter:

- health centre supervisors
- supervisors of vaccination activities
- nursing supervisors
- local government officials
- church leaders
- school officials

COURSE MANAGER GUIDELINES

Supervise Performance

1. Distribute copies of the Introduction booklet (if not distributed previously), the module, and the Forms Package.
2. Explain that the Forms Package contains examples of just some of the forms that might be used to supervise performance. Participants should modify these forms and/or add new forms to suit their needs.
3. Ask participants to turn to the Glossary on page 63 in the module. Explain that it includes important words from the module and should be referred to as often as necessary.
4. Explain how work on the module will be done:
 - a. Each participant will read the module, working through the practice exercises included in the text and consulting with a course manager after completion of each exercise or as questions arise.
 - b. Exercise D, at the end of the module, will be a group discussion. Ask participants to tell you individually when they are ready to begin the discussion so that you will know when the entire group is ready.
5. Encourage participants to ask questions. Tell them that you will always be available while they are working.
6. Tell participants to read the Introduction booklet (if they have not already done so), and then to begin working through the module. Ask them to check with you after they have completed Exercise A.
7. When a participant has completed Exercise A,
 - a. Check his/her answers to see if:
 - the job description of the Advance Man/Community Mobilizer is selected.
 - the tasks written for the Storekeeper's job description are precise, practical, and easy to understand.

- b. Show participant the Annex of Monitoring Functions. Explain what the information in each column means and how to use that information. For example, you could turn to page 38 and say:
- (1) "At the regional level," (Point to Programme Level column.)
 - (2) "You are monitoring performance related to vaccine." (Point to Category column.)
 - (3) "One thing you might do would be to calculate vaccine administered." (Point to Type of Monitoring column.)
 - (4) "The method you might use would be to compare total doses administered in the region with the amount administered in earlier periods." (Point to Method column.)
 - (5) "You would do this monthly." (Point to Frequency column.)
 - (6) "You would know that you had a problem if the difference between the amount of vaccine administered this month and the amount administered in earlier periods was more than 25%." (Point to Problem Indicator column.)
- c. Explain that the types and methods of monitoring are just samples. Participants should modify and add to this list so that the Annex represents what performance they will monitor, how they will monitor that performance, and how often this monitoring will occur.
- d. Ask participant to read pages 9-19, and to do Exercise B. Remind him/her that you are available to answer any questions. Ask participant to consult with you after completing Exercise B.
8. When a participant has completed Exercise B, check his/her answers to see if the problems are described clearly and precisely.
 9. When a participant has completed Exercise C, check his/her answers to see if the monitoring types and methods are appropriate (that is, the types and methods would have identified the problem).
 10. Ask participant to read pages 24-36, and to prepare for the group discussion of how to identify causes and solutions. Ask him/her to

tell you when (s)he is ready to begin the discussion so that you will know when the entire group is ready.

11. When all participants are ready for the group discussion in Exercise D:
 - a. Ask a participant to present the problem (s)he described in Exercise B to the group.
 - b. Ask other participants to use the checklist on page 34 to suggest probable causes of this problem.
 - c. Write down the causes as they are suggested on a blackboard or large poster. If these are not available, use a piece of paper.
 - d. When participants cannot think of any more causes, ask participants to use the checklist on page 34 to suggest solutions to remove each listed cause.
 - e. Ask a second participant to present the problem (s)he described in Exercise B. Repeat 11 (b.-d.) for this problem (and for as many other problems as time allows).
12. Tell participants that you hope the module will be useful to them in their own areas and conclude the discussion appropriately.

SUPERVISE PERFORMANCE

Forms Package

Health centre supervisors, mobile team leaders, and regional storekeepers may use records similar to the ones listed on the chart on the next page to monitor their staff's performance. After completing the records, these supervisors would send them to their own supervisors at the end of each month. The higher level supervisors would use the data in the records to monitor performance and to assist staff in carrying out their duties. They may even complete some of the summary forms listed on the chart. The forms in this package are examples of just some of the forms which might be useful in monitoring the performance of staff in an immunization programme. You may find that you need to develop forms for monitoring performance within your own programme.

FORMS USED IN MONITORING

Regional Supervisor	Health Centre Supervisor/ Mobile Team Leader	Regional or Health Centre Storekeeper
Regional Vaccine Inventory		Vaccine Inventory
Regional Vaccines Control Card	Vaccines Control Card (Health Centre only)	Vaccines Control Card
Supplies Control Card	Supplies Control Card (Health Centre only)	Supplies Control Card
Monthly Vaccination Reporting Form	Weekly Vaccination Reporting Form	
Cold Chain Performance Report	Refrigerator Record	Refrigerator Record
Vehicle/Motorcycle Report	Vehicle Log Book Vehicle/Motorcycle Maintenance and Repair Sheet	Vehicle Log Book Vehicle/Motorcycle Maintenance and Repair Sheet
Regional Monthly Cost Report	Monthly Cost Report	
	Vaccination Sessions Schedule	
	Vaccination Card	

The health centre supervisors and mobile team leaders may collect information to be sent to higher levels of supervision in the following manner.

At the end of each day:

Collect Vaccination Reporting Forms from staff

Collect purchase receipts (e.g., for oil or publicity materials) from staff.

At the end of each week:

Summarize the data on daily Vaccination Reporting Forms and complete Weekly Vaccination Reporting Form.

At the end of each month:

Collect carbon copies of:

Vaccines Control Card (Health Centre only)

Supplies Control Card (Health Centre only)

Refrigerator Record

Vehicle Log Book

Vehicle/Motorcycle Maintenance and Repair Sheet

Vaccination Schedule

Monthly Cost Report

A regional or health centre storekeeper might also send carbon copies of the forms listed in his column to his supervisor at the end of each month.

FORMS USED
BY
REGIONAL SUPERVISOR

REGIONAL VACCINE INVENTORY

For Supply Period

Beginning _____

Ending _____

Signature of Regional/District Storekeeper:	Name of Regional Centre				
Signature of Health Centre Cold Chain Officer:	Number of Vials				
	Measles	BCG	Polio	DPT	Tetanus
1. Balance at end of previous supply period (count in refrigerator)					
2. New supply received					
3. Balance at beginning of current supply period (1 + 2)					
4. Balance at end of current supply period (count in refrigerator)					
5. Amount used during current supply period (3 - 4)					
6. Amount needed during next supply period.					
7. New supply requested (6-4)					

REGIONAL VACCINES CONTROL CARD

Keep these cards together in a file. Separate records for each vaccine, each type of 'doses'/container. The following is an example of countries without an existing system.

title of stores -

vaccine type and doses
per container

[illegible]

```
*      batch expiry date
**     order book numbers
```

```
*** balance of containers in stock
**** number of containers disbursed
      or received
```

SUPPLIES CONTROL CARD

title of stores

[illegible]

- 1 Enter Epidemiological Div., Regional Store, etc.
- 2 Enter Operations Officer, etc.

MONTHLY VACCINATION REPORTING FORM

Signature: _____

Regional Supervisor

Dates: from _____ to _____

Place: _____

Age group Vaccines	3-5 mos.	6-8 mos.	9-11 mos.	12-14 mos.	Other children	Pregnant women	Vaccine Information				
							Doses per bottle	Number of bottles	Total doses supplied	Doses admin- istered	Doses not ad- ministered
BCG											
DPT I											
DPT II											
DPT III											
Polio I											
Polio II											
Polio III											
Measles											
Tetanus # 1											
Tetanus # 2											
Other											

COLD CHAIN PERFORMANCE REPORT

Month: _____
 Region: _____

Responsible Officer/ Public Health Nurse/ Team Leader	FREEZER				REFRIGERATOR				Number cold boxes in working condition
	Number working days	Temperature recorded		Number days not working	Number working days	Temperature recorded		Number days not working	
		Lowest	Highest			Lowest	Highest		
1									
2									
1									
2									

- 1 - Main freezer/refrigerator/cold box
- 2 - Stand-by freezer/refrigerator/cold box

Remarks: _____

Date _____ Operations Officer _____

VEHICLE/MOTORCYCLE REPORT

Month: _____

Region: _____

Vehicle/ Motorcycle Licence No	Mileage reading first of month	Mileage reading end of month	Mileage run during month	Number of working days	Number of days in repair	Consumption litres	
						Gasoline	Oil

Remarks: _____

Date: _____

Operations Officer: _____

REGIONAL MONTHLY COST REPORT

MONTHLY COST REPORT			Date from:	
Reporting Officer:			to:	
			Region:	
Category	Unit Cost	No. of Units	Total Cost	Remarks
Salaries: - No. of staff by category				
Total cost attributable	X	X		
Supplies: - Gasoline - Kerosene - Oil - Stationery - Spare parts Sub-total				
	X	X		
Maintenance: - Transport - Equipment - Other Sub-total				
	X	X		
Health Education: -Publicity -Materials Sub-total				
	X	X		
TOTAL	X	X		

FORMS USED

BY

HEALTH CENTRE SUPERVISOR/
MOBILE TEAM LEADER

SUPPLIES CONTROL CARD

title of stores

[illegible]

1 Enter Epidemiological Div., Regional
Store, etc.

2 Enter Operations Officer, etc. 17

VACCINES CONTROL CARD

Keep these cards together in a file. Separate records for each vaccine, each type of 'doses'/container. The following is an example for countries without an existing system.

title of stores →

vaccine type and doses
per container

[illegible]

```
*      batch expiry date
**     order book numbers
```

```
*** balance of containers in stock
**** number of containers disbursed
or received
```


WEEKLY VACCINATION REPORTING FORM

Signature: _____

Vaccination Supervisor

Dates: from _____ to _____

Place: _____

Age group Vaccines	3-5 mos.	6-8 mos.	9-11 mos.	12-14 mos.	Other children	Pregnant women	Vaccine Information				
							Doses per bottle	Number of bottles	Total doses supplied	Doses admin- istered	Doses not ad- ministered
BCG											
DPT I											
DPT II											
DPT III											
Polio I											
Polio II											
Polio III											
Measles											
Tetanus # 1											
Tetanus # 2											
Other											

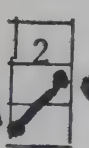
refrigerator record

(DPT Vaccine)

example:

MONTH: November 1977		DAY	1	7	14	21	28	31
ALL TYPES	Temperature in morning /NOW	6	7	6	5	8	5	22
	Centigrade /MAX	8	9	9	7	10	7	28
	/MIN	4	3	2	2	5	4	5
	Temperature in evening /NOW	5	8	7	8	6	7	
	Centigrade /MAX	10	9	9	8	8	10	
	/MIN	2	4	4	3	5	5	
	Is the ice solid? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	✓	✓	✓	✓	✓	✓	
	Refrigeration failure	No. of hours						
	Temp. when found							
	Notes on action							
Cross days not in use								
KEROSENE	Refuel	Top up tank	✓	✓	✓			
	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Clean & fill						
	Gallons fuel used per week;							
	Trim wick	Check flame	✓	✓	✓	✓	✓	
	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Trim wick	✓	✓	✓	✓		
	Parts replacement	Wick						
	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Glass						
		Burner						
	Clean flue	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			✓			
GAS	New gas bottle	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>						
	New hose	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>						
	Clean jet	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>						

REFRIGERATOR RECORD (Example)

Month: November 1977		Day	1	7	14	21	28	
AM on left  PM on right	Temperature °C	+25						
		+20						
		+15						
		+10						
		+ 5						
		0						
		- 5						
		-10						
	Refrigerator failure	Number of hours						
		Temp. when found						
Cross days not in use								
Weekly record of spare parts replaced								

VEHICLE LOG BOOK					REGISTRATION NO:	
Kilometres carried over:					Driver:	
Details of trip:		Kilometres reading at end of trip	Kilometres traveled	Litres used*	Remarks	Date
TOTAL						

* Derived from purchase receipts.

VEHICLE/MOTORCYCLE MAINTENANCE AND REPAIR SHEET						REGISTRATION NO:	
						Driver:	
In	Date In Out	Number of days	Work performed and spare parts fitted	Name of Mechanic	Kilometres reading	Costs	
TOTAL							

TM-110
12253

MONTHLY COST REPORT			Date from:	
Reporting Officer:			to:	
			Region:	
Category	Unit Cost	No. of Units	Total Cost	Remarks
Salaries: - No. of staff by category				
Total cost attributable				
Supplies: - Gasoline - Kerosene - Oil - Stationery - Spare parts Sub-total				
Maintenance: - Transport - Equipment - Other Sub-total				
Health Education: -Publicity -Materials Sub-total				
TOTAL				

VACCINATION SESSIONS SCHEDULE			
_____ Health Centre			
Day	Morning	Afternoon	Evening or Night
Sunday			
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			

VACCINATION SESSIONS SCHEDULE			
Outreach Activities for _____ Health Centre			
Village or Vaccination Site	Day	Time	Person Responsible

VACCINATION CARD			
Name			
Name of Mother			
Name of Father			
Male or Female			
Birthdate	day	month	year
Name of village			
VACCINES	DATE GIVEN		
	day	month	year
BCG			
DPT I			
DPT II			
DPT III			
Polio I			
Polio II			
Polio III			
Measles			
Tetanus I			
Tetanus II			
Other			

FORMS USED
BY
REGIONAL OR HEALTH CENTRE STOREKEEPER

VACCINE INVENTORY

For Supply Period

Beginning _____

Ending _____

Signature of Regional or Health Center Storekeeper:	Name of Region or Health Centre:				
Signature of Regional or Health Centre Cold Chain Officer:	Number of Vials				
	Measles	BCG	Polio	DPT	Tetanus
1. Balance at end of previous supply period (count in refrigerator)					
2. New supply received					
3. Balance at beginning of current supply period (1 + 2)					
4. Balance at end of current supply period (count in refrigerator)					
5. Amount used during current supply period (3 - 4)					
6. Amount needed during next supply period.					
7. New supply requested (6-4)					

VACCINES CONTROL CARD

Keep these cards together in a file. Separate records for each vaccine, each type of 'doses'/container. The following is an example for countries without an existing system.

title of stores

vaccine type and doses
per container

[illegible]

* batch expiry date
** order book numbers

***	balance of containers in stock
****	number of containers disbursed
	or received

SUPPLIES CONTROL CARD

title of stores →

[illegible]

1. Enter Epidemiological Div., Regional Store, etc.
2. Enter Operations Officer, etc.

refrigerator record

MONTH: November 1977

DAY

(DPT Vaccine)

example:

		1	7	14	21	28	31	
ALL TYPES	Temperature in morning /NOW	6	7	6	5	8	5	22
	Centigrade /MAX	8	9	9	7	10	7	28
	/MIN	4	3	2	2	5	4	5
	Temperature in evening /NOW	5	8	7	8	6	7	
	Centigrade /MAX	10	9	9	8	8	10	
	/MIN	2	4	4	3	5	5	
	Is the ice solid? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	✓	✓	✓	✓	✓	✓	
	Refrigeration No. of hours							24
	failure Temp. when found							22
	Notes on action							Clean & refill
KEROSENE	Refuel Top up tank	✓	✓	✓				
	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Clean & fill							
	Gallons fuel used per week;							
	Trim wick Check flame	✓	✓	✓	✓	✓	✓	
	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Trim wick	✓	✓	✓	✓	✓	✓	
	Parts replacement Wick							
	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Glass							
	Burner							
	Clean flue YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>							✓
	GAS	New gas bottle YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>						
New hose YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>								
Clean jet YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>								

REFRIGERATOR RECORD (Example)

Month: November 1977		Day	1	7	14	21	28	30
Temperature °C M on left PM on right 	+25							
	+20							
	+15							
	+10							
	+5							
	0							
	-5							
	-10							
Refrigerator failure	Number of hours							
	Temp. when found							
	Cross days not in use							
	Weekly record of spare parts replaced							

VEHICLE LOG BOOK				REGISTRATION NO:	
Kilometres carried over:				Driver:	
Details of trip:	Kilometres reading at end of trip	Kilometres traveled	Litres used*	Remarks	Date
TOTAL					

* Derived from purchase receipts.

VEHICLE/MOTORCYCLE MAINTENANCE AND REPAIR SHEET						REGISTRATION NO:	
						Driver:	
						Kilometres reading	
Date		Number of days	Work performed and spare parts fitted	Name of Mechanic			
In	Out						
TOTAL							

COURSE MANAGER GUIDELINES

Provide Training

1. Distribute copies of the Introduction booklet (if not distributed previously) and the module.
2. If you desire, provide an introduction to the module describing the importance of training and its impact on performance.
3. Ask participants to turn to the Glossary on page 38 in the module. Explain that it contains important words from the module and should be referred to as often as necessary.
4. Review the flowchart on page 3. Note that this module and the module on Supervise Performance are closely related. Explain that the darker blocks are the tasks which will be described and practiced in this module.
5. Explain that the module contains several practice exercises. In some exercises, participants should write out their answers and check them individually with you. In other exercises, they may be asked to take part in group discussions.
6. Tell participants that you are available to answer questions at any time.
7. Ask for questions.
8. Ask participants to read the Introduction booklet (if they have not already done so) and to begin work on the module. Tell them to talk to you after they complete each exercise.
9. Discussion points for each exercise (A-H) in the module are provided on the following pages. You should compare participants' answers with the sample answers provided, but keep in mind that a variety of answers may be acceptable.

Discussion Points for Exercise A (Parts One and Two)

Part One

1. The training objective which is more complete and more useful is Training Objective Number 1.
2. It is better for the following reasons:
 - It states when the work is to be done
"While mothers are waiting in line. . . ."
 - It states what specific information is to be provided
"Vaccines are provided to prevent six diseases," etc.
 - It states how to know that the work is being done adequately
"After children have been vaccinated, ask mothers date on which to bring children back," etc.
3. A sample correct response is provided below. Other answers which are less detailed are also acceptable.

"The first objective is the more useful of the two. It specifies when the action should occur ("while mothers are in line"); what action should occur ("explain that vaccines are provided to prevent 6 diseases"), dosage schedule, how this schedule affects mothers of children vaccinated--that they'll have to bring children back; and provides a means of evaluating how well the information was explained ("mothers must tell vaccinator what dates they'll bring their children back and for what vaccinations").

The staff knows exactly what is expected of them, and how well the skills must be performed."

Part Two

1. The objective should state what should be said to mothers about possible side effects, when it should be said, and how it will be possible to know that mothers understand.
2. An example of a correct response is provided below. Note that responses which are less detailed may also be correct as long as they attempt to answer the questions described above.

Exercise A -- continued

"After children have received their vaccinations, inform mothers that:

- it is possible that the vaccines may cause a reaction, but emphasize that the immunization is not dangerous
- a reaction to the vaccine is an indication the vaccine is developing the defenses of the child and that the reaction is much milder than the sickness
- some possible reactions to vaccines may be:
 - (a) DPT and antitetanus toxoid -- can cause a slight pain and inflammation at the injection site, and possible fever for 1-2 days.
 - (b) Measles vaccine -- often can cause fever from 6-10 days after the vaccination that lasts 1-2 days. A slight rash of 1-3 days duration might also occur.
 - (c) BCG -- always causes a small sore on the arm that can take 2-3 months to heal. It won't cause any problems as long as it is kept clean, and as long as you don't cover it with cream or ointment. The vaccination may cause an inflammation that may be painful for the child, but unless it increases a lot or lasts a long time, there is no need to worry.

- After the mothers have been informed, ask for questions.

After you have responded to their questions, ask mothers what some of the reactions they might look for are and ask under what conditions they would seek follow-up medical attention (in order to determine whether or not they have understood the information provided)."

Discussion Points for Exercise B

1. All methods listed must include some type of practice. In order to learn the skill of using sterile techniques, staff must practice the skill. Some of the more likely methods to be listed are

- Apprenticeships
- Supervised practice

Demonstrations and job aids may also be used if they are combined with practice.

2. If participants have other methods listed, ask them why they included them. Accept all reasonable explanations. It is not an acceptable answer, however, to include methods such as lecture or written communication without practice.
3. The selection of the most effective method that is easiest to implement will vary. There is no single response. Participants should be able to explain why they selected one method rather than the other possible methods they listed.

Discussion Points for Exercise C

1. Possible methods include the following:

Role play

Apprenticeship

Demonstration

Supervised practice

Methods listed should allow the participants to participate in a way which is as close to the real-life situation as possible.

2. You may wish to discuss other methods and point out why they would be less useful.
3. Probably the most effective and easiest method to implement is role play. This might be combined with other methods such as job aids to ensure that staff remember the specific information to be provided.
4. There are no specific right answers to this exercise, but participants should be able to explain the reasons for their choices.

Discussion Points for Exercise D

1. Will the training method(s) selected solve the problem? An example of a correct response is provided below.

"Just by telling staff how to use equipment, you cannot expect them to be able to use it. They must see a demonstration of its use, and they must be able to practice its use, under supervision. They must be able to ask questions during the demonstration and while they are practicing.

If there are no disposable needles and syringes on hand, the regular meeting should have been postponed until they are received, or cancelled. With so many employees, unless there are at least 5 or so experienced workers who could demonstrate use of the equipment to small groups, it is too big a group to teach. It would be better for trainers to travel to individual health centres and teach staff there under local conditions and with available equipment. The booklet would serve as a handy reference, but does not suffice. Memorizing sections of the booklet is not what is needed. Staff should also practice in presence of a supervisor."

After the training session is over, staff need to know how they can contact a supervisor when questions and problems occur. Writing the regional supervisor should not be the only way to do this. If possible, staff should be able to quickly contact other experienced personnel.

2. What would you do differently to improve the training?

Some suggestions are provided in the example above. Any changes--which include the use of supervised practice with the actual equipment, smaller group sessions, and continued on-the-job supervision--should be considered correct responses. The main point is that staff must practice using the equipment in the presence of a supervisor who can ensure that they use and dispose of the new needles and syringes correctly before vaccination activities are started.

Discussion Points for Exercise E

1. Select the training problem you wish the group to work on. It may be one of the problems listed in the text or it may be a problem of concern to you and the group. Select problems for which training materials can be developed in one to two hours. Some possible problems are:
 - a. Employees do not understand how to administer DPT vaccine. (Write job aid or prepare demonstration.)
 - b. Mothers do not understand why they must wait until their children reach nine months of age before they can receive measles vaccine. (Prepare role play by listing all the questions and reactions mothers might have.)
 - c. Polio vaccine is being introduced into the program. Staff do not know much about the disease or the vaccine. (Prepare outline of lecture.)
 - d. Immunizations are being introduced into a Primary Health Care center. Staff may be confused about how they are to fit this work into all their other activities. (Prepare for a group discussion, including suggestions for successful integration.)
 - e. Immunizations are being introduced into an entire region, and you must train thirty health centre supervisors. (Develop an outline of the course. List all the administrative arrangements that must be considered.)
2. Assist participants in selecting different methods to resolve the problem. (You may choose to have them work individually or as partners.)
3. Make sure that they have the materials they need (paper, scissors, markers, etc.) and be available to help them get started.
4. If possible, have examples of good training material which they can look at.
5. In evaluating their materials, consider the amount of time and effort that went into preparing them. Praise all aspects of the work that they have

Exercise E -- continued

done well. Attempt to help them correct problems before they have produced a finished product.

6. Ask participants to comment on their own work and to suggest ways in which they might change or expand the materials if they had more time.

Discussion Points for Exercise F

1. Any listed factors should be considered correct responses.
2. If the list is very short, encourage the individual to think of other situations in which problems existed which kept training from being effective.
3. A sample list is provided below.
 1. Classroom too hot or too cold
 2. Open windows near busy street
 3. Study room next to kitchen, where sounds of voices, dishes could be heard (in hotel)
 4. Poor sound system in large lecture hall so that persons in back could not hear speaker
 5. Slide presentation in which instructor blocked view of persons seated around him by standing up and moving around next to projector
 6. Working into or through lunch
 7. Smokers/nonsmokers having to work side-by-side in same room
 8. Too much traffic in and out of the room (e.g., visitors, other students)
 9. Instructor reluctant to have questions from participants
 10. Some participants talking so much that others could not ask questions
 11. Training material so complicated participants could not understand it

Discussion Points for Exercise G

1. This exercise provides an opportunity to create an atmosphere of group solidarity and support. It also provides an opportunity to motivate staff in the development and use of effective training materials.
2. You can do this by providing and encouraging positive comments on the methods presented. The comments must be sincere, however. Try to find some aspects of the presentation that you feel were particularly effective. Encourage other participants to do the same.
3. In making suggestions for improvement, be as specific as possible. State not only what should be changed but how it could be changed.
4. Focus on the problem you wish to solve through training. To summarize the exercise, ask staff to comment on the effectiveness of the methods presented. Do they feel the methods would solve the problem?
5. Summarize the basic elements of effective training as described in the module and point to examples of good training techniques used in the presentations. (Attempt to refer to some aspect of everyone's presentation.)

Discussion Points for Exercise H

1. If this module is presented as the last module in a training session where many or all modules are used, a worksheet for each module can be completed as the final exercise in the course.
2. If this module will be followed by others, participants can complete one worksheet as they finish the work on each module. These worksheets can be discussed individually or as a group after they have all been completed.
3. If only one module is being done in a training session, it may be best to complete the worksheet as you complete the work on that module.
4. Since this is an opportunity for the participants to actually plan how they will use this training course, you should review their answers carefully to make sure that they are realistic and that they make good use of the material presented.

COURSE MANAGER GUIDELINES

Evaluate Vaccination Coverage

1. Distribute copies of the Introduction booklet (if this has not already been done) and the module.
2. Provide an introduction to the module which briefly describes
 - the importance of evaluating vaccination coverage.
 - the use of coverage evaluation surveys and the validity of using the cluster sampling technique.
 - the basic steps involved in the coverage evaluation survey (selection of an area to be surveyed and identification of clusters, selection of age range to be evaluated, random identification of first household, data to be completed on Household Summary Form, collation of data on clusters, comparison of achieved coverage with desired coverage).
3. State that a field exercise will allow participants to apply the skills they practice in the module. Provide information as needed about the field exercise.
4. Ask participants to turn to the Glossary on p. 50 in the module. Explain that it contains important words from the module and should be referred to as often as necessary.
5. State that participants should work through each practice exercise in the module and write their answers in the space or worksheet provided. Worksheets may be removed from the module for easier use. Participants should check their answers for each exercise by obtaining an answer sheet from you.
6. Tell participants you will be available to answer questions at any time.
7. Ask for questions.
8. Ask participants to read the Introduction booklet (if they have not already done so) and to begin work on the module.

Answers for Exercises A-H

1. On the following pages, a copy of the answer sheet for each exercise is provided.
2. You should have sufficient copies of each answer sheet available for all the participants in your group.
3. Provide each participant with an answer sheet as he completes each exercise and discuss any differences or problems he had in completing the exercise. Note that for some exercises there is more than one possible right answer.

Field Exercise

1. To function smoothly, the field exercise must be carefully planned in advance.
2. Participants should be informed of the details of the exercise after work on the module is completed.

EVALUATE VACCINATION COVERAGE

ANSWER SHEETS

CLUSTER IDENTIFICATION FORM

(SAMPLE FORMAT)

CITIES, TOWNS, AND VILLAGES OF COASTAL REGION

No.	Name	Population	Cumulative Population	Location of Cluster	No.	Name	Population	Cumulative Population	Location of Cluster
1	Utarai	12,888	12,888	1	39	Ore-Nikam	3,105	257,672	
2	Bolama	3,489	16,377		40	Duno-Nikam	4,176	261,848	
3	Tatum	6,826	23,203		41	Kedi-Sina	1,919	263,767	
4	Kara-Yali	4,339	27,542		42	Pambalok	3,261	267,028	
5	Galey	2,203	29,745		43	Rokini	4,270	271,298	
6	Tarum	4,341	34,086		44	Talosso	3,301	274,599	
7	Hamtato	1,544	35,630		45	Djaragna	3,250	277,849	
8	Nayjaff	885	36,515		46	Bibachi	4,670	282,519	11
9	Nuviva	2,962	39,477	2	47	Bilam	757	283,276	
10	Cattical	4,234	43,711		48	Sisse	12,037	295,313	
11	Paralai	1,520	45,231		49	Anda-Dalai	2,155	297,468	
12	Egala-Nuru	3,767	48,998		50	Varok	3,702	301,170	
13	Uwanarpol	3,053	52,051		51	Boul	2,262	303,432	
14	Bilandia	60,000	112,051	3, 4	52	Boul-Malal	791	304,223	
15	Puratna	2,207	114,348		53	Pappan	3,468	307,691	12
16	Kegalni	1,355	115,703		54	Uapybo	4,338	312,029	
17	Hamali-Ura	833	116,536		55	Goumam	3,930	315,959	
18	Kameni	4,118	120,654	5	56	Nzelji	2,112	318,071	
19	Kirova	2,782	123,436		57	Magasa	3,953	322,024	
20	Yanwela	3,285	126,721		58	Onam	2,198	324,222	
21	Bagvi	4,416	131,137		59	Koundo	9,891	334,113	13
22	Atota	3,188	134,325		60	Paona	3,154	337,267	
23	Kogouva	1,179	135,504		61	Nagbi	2,548	339,815	
24	Ahekpa	612	136,116		62	Ponakpo	1,034	340,849	
25	Yondot	3,193	139,309		63	Auguromi	2,415	343,264	
26	Nozop	17,808	157,117	6	64	Pali	4,325	347,589	
27	Mapasko	3,914	161,031		65	Ngoi	13,233	360,822	14
28	Lotohah	15,006	176,037	7	66	Majagdi	511	361,333	
29	Voattigan	9,584	185,621		67	Yardi	2,313	363,646	
30	Plitok	4,225	189,846		68	Chankam	3,108	366,754	
31	Dopoltran	2,652	193,498		69	Livaspa	4,163	370,917	
32	Cococopa	35,000	227,498	8, 9	70	Rhemastiput	4,250	375,167	
33	Famegzi	3,954	231,452		71	Anghor	784	375,951	
34	Jigpelay	2,115	233,567		72	Ransiha	3,423	379,374	
35	Nesoh	507	234,074		73	Phajip	4,098	383,472	
36	Odigia	3,516	237,590		74	Dumakpa	4,540	388,012	15
37	Sanbati	14,402	251,992		75	Baktari	2,322	390,334	
38	Andidwa	2,575	254,567	10	76	Nako	3,987	394,321	

Figure 1: Worksheet for Exercise A

(continued on next page)

CLUSTER IDENTIFICATION FORM

CITIES, TOWNS, AND VILLAGES OF COASTAL REGION

No.	Name	Population	Cumulative Population	Location of Cluster
77	Ganda	4,211	398,532	
78	Sapa-Barchit	2,541	401,073	
79	Nuwa	848	401,921	
80	Nangja	1,281	403,202	
81	Kuwassak	3,310	406,512	
82	Kaniti	4,313	410,825	
83	Lukkumasa	4,762	415,587	16
84	Jepu	3,647	419,234	
85	Thynrupa	2,530	421,764	
86	Yanfasul	16,983	438,747	
87	Nali-Ilo	2,730	441,477	17
88	Papalo	4,869	446,346	
89	Agrakhan	3,300	449,646	
90	Tido	4,150	453,796	
91	Jubara	3,760	457,556	
92	Pilasta	1,587	459,143	
93	Lejaple	16,699	475,842	18
94	Lahisa	2,703	478,545	
95	Chapmar	747	479,292	
96	Dhalisk	4,451	483,743	
97	Briko	4,425	488,168	
98	Humu	3,860	492,028	
99	Baryidda	2,835	494,863	19
100	Lekdai	1,725	496,588	
101	Izigha	3,988	500,576	
102	Loaz	4,124	504,700	
103	Jikoud	4,389	509,089	
104	Gopouda	1,126	510,215	
105	Akafo	2,166	512,381	
106	Endera	3,393	515,774	
107	Seyou	4,787	520,561	20
108	Lallos	3,447	524,008	
109	Dehaba	3,689	527,697	
110	Semdi	4,696	532,393	
111	Granoli	60,000	592,393	21, 22
112	Nehoa	3,990	596,383	
113	Melo	4,754	601,137	23

(a) Sampling Interval = Total Cumulative Population = (a) $800,000/30 = 26,667$

(b) Random No = 12,752

Figure 2: Worksheet for Exercise A

Answer Sheet for Exercise B

Provided below are sample answers for each example.

1. To select the number of the starting household using the tax list provided, I would look at the last two digits on currency notes until I obtained a number between 01 and 99. That would be the number of the first household to be visited.
2. I numbered the houses in the area and selected a two digit random number between 01 and 13 using a currency bill. The number selected was 06. That would be the number of the first household to be visited.

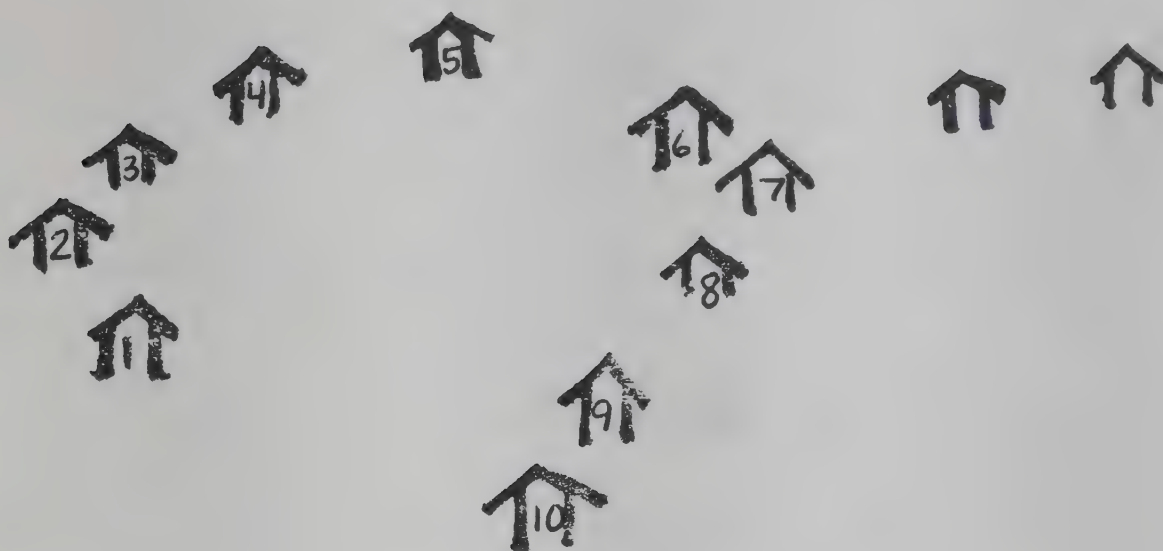


3. I selected the last number on a currency bill to obtain the direction from the market, which was 2 = East. I counted the houses along that line including those which were close to but not on the line. I then



selected another random number from 1 to 8 to identify the starting household, which is circled.

Answer sheet for Exercise C



HOUSEHOLD SUMMARY FORM

Answer Sheet for Exercise D

- (1) Cluster Number 1
- (2) Age Group Being Evaluated 12 To 17 Months
- (3) Date of Interview 7 March 1978
- (4) Birthdate of Age Range To Be Evaluated 7 Sept 1976 To 7 March 1977
- (5) Region Coastal
- (6) City, Town, or Village Utacal
- (7) Interviewer(s) RC Hogan

Person Number	(8) Household Number	(9) Name of Child In Age Range	(10) Birth-Date	(11) Vaccination Card (+,-)	(12) Vaccination Record (Record Date of Vaccination)								(13) Fully Vaccinated (+,-)
					BCG	Polio 1	Polio 2	Polio 3	DPT 1	DPT 2	DPT 3	Measles	
						(P ₁)	(P ₂)	(P ₃)	(D ₁)	(D ₂)	(D ₃)	(M)	
i	1	Ayo Mbaye	13/12/76	+	15/12/76	16/3/77	14/5/77	30/6/77	16/3/77	14/5/77	30/6/77	30/8/77	
2	1	Atumane Mbaye	18/2/77	-	0	0	0	0	0	0	0	0	
3	2	Daba Kone	6/11/76	+	8/11/76	5/3/77	0	0	5/3/77	0	0	0	
4													
5													
6													
7													
8													
9													
10													
TOTAL FULLY VACCINATED													

Answer Sheet for Exercise E

1. Item (4), dates should be 8/11/76 - 8/5/77
2. Item (6), name left out; should be Ngol
3. Item (7), interviewer's name not legible; should be Balla
4. Item (8), household numbers left out for children #3 and #6; child #3 is in household #3, and child #6 is in household #5.
5. Child #2 is too old to be included in age group being evaluated.
6. Since child #3 did not have a vaccination card, none of the vaccinations recorded can be considered valid.
7. The first name of child #4 is not legible; it should be Joseph. It is not clear whether or not child #4 received the second and third doses of Polio and DPT vaccines. Either the date of vaccination or " 0 " should be entered in the appropriate boxes. In fact, the child did not receive second and third doses of either vaccine.
8. All information on child #6 is missing. In fact, he was born 14/4/77 but did not have a vaccination card.
9. For child #7, the date given for BCG vaccination is before the date of birth. The actual date of vaccination was 7 March 1977.
10. The date that child #7 received Measles vaccine is not clearly written. The date should be 14/12/77.

You will use the corrected version of this form in Exercise F.

HOUSEHOLD SUMMARY FORM

Answer Sheet for Exercise E
(corrected as worksheet)

- (1) Cluster Number 14
- (2) Age Group Being Evaluated 12 To 17 Months
- (3) Date of Interview 8/5/78
- (4) Birthdate of Age Range To Be Evaluated 8/12/76 To 8/5/77
- (5) Region Coastal
- (6) City, Town, or Village Nzai
- (7) Interviewer(s) A. Balla

(8) Household Number	(9) Name of Child In Age Range	(10) Birth-Date	(11) Vaccination Card (+,-)	(12) Vaccination Record (Record Date of Vaccination)								(13) Fully Vaccinated (+,-)
				BCG	Polio 1 (P ₁)	Polio 2 (P ₂)	Polio 3 (P ₃)	DPT 1 (D ₁)	DPT 2 (D ₂)	DPT 3 (D ₃)	Measles (M)	
1	Christopher Idris	17/12/76	+	19/12/76	17/4/77	8/6/77	0	17/4/77	8/6/77	0	0	
2	Ayo Idris	3/10/76	+	11/12/76	17/4/77	8/6/77	7/8/77	17/4/77	8/6/77	3/8/77	3/8/77	
3	Alaba Idris	13/4/77	-	14/7/77	20/9/77	20/12/77	1/4/78	20/9/77	20/12/77	1/4/78	0	
4	Alaba Idris	2/2/77	+	7/2/77	17/4/77	0	0	17/4/77	0	0	2/12/77	
5	Mity Hbaya	15/1/77	+	16/1/77	2/4/77	5/6/77	19/9/77	2/4/77	5/6/77	19/9/77	3/8/77	
6	Atumane Hbaya	14/4/77	-	0	0	0	0	0	0	0	0	
7	Ijone Kone	5/3/77	+	7/3/77	6/6/77	2/10/77	14/11/77	6/6/77	2/10/77	14/11/77	4/12/77	
8	Kuame Kofi	28/11/76	+	16/1/77	16/1/77	8/6/77	0	16/1/77	8/6/77	0	0	
9												
10												
TOTAL FULLY VACCINATED												

Note: Corrected items are circled or crossed through.

Note: Corrected items are circled or crossed through.

Answer Sheet for Exercise F

HOUSEHOLD SUMMARY FORM

- (1) Cluster Number 14
 (2) Age Group Being Evaluated 12 To 17 Months
 (3) Date of Interview 8/5/78
 (4) Birthdate of Age Range To Be Evaluated 8/11/76 To 8/5/77

(5) Region Coastal

(6) City, Town, or Village Nzai

(7) Interviewer(s) Balla

(8) Household Number	(9) Name of Child In Age Range	(10) Birth-Date	(11) Vaccination Card (+, -)	(12) Vaccination Record (Record Date of Vaccination)								(13) Fully Vaccinated (+, -)
				BCG	Polio 1 (P ₁)	Polio 2 (P ₂)	Polio 3 (P ₃)	DPT 1 (D ₁)	DPT 2 (D ₂)	DPT 3 (D ₃)	Measles (M)	
1	Christopher Idris	17/12/76	+	19/12/76	17/4/77	8/6/77	0	17/4/77	8/6/77	0	0	-
2	Aye Idris	8/10/76	+	11/12/76	17/4/77	8/6/77	7/8/77	17/4/77	8/6/77	3/8/77	3/8/77	-
3	Alaba Idris	13/4/77	-	14/7/77	20/4/77	20/12/77	1/4/78	20/9/77	20/4/77	1/4/78	0	-
4	Aly Abbas	2/2/77	+	7/2/77	17/4/77	0	0	17/4/77	0	0	2/12/77	-
5	Hedy Hbaya	15/1/77	+	16/1/77	2/4/77	6/6/77	19/9/77	2/4/77	5/6/77	19/9/77	3/8/77	-
6	Auriane Hbaya	14/4/77	-	0	0	0	0	0	0	0	0	-
7	Ijone Kane	5/3/77	+	7/3/77	6/6/77	2/10/77	14/11/77	6/6/77	2/10/77	14/11/77	14/12/77 14/12/77	+
8	Kacime Kafa	28/11/76	+	16/1/77	16/1/77	8/6/77	0	16/1/77	8/6/77	0	0	-
9												
10												

NOTE: Connected lines are circled or crossed through.

TOTAL FULLY VACCINATED

Note: Corrected items are circled or crossed through.

TOTAL FULLY VACCINATED

Answer Sheet for Exercise G

CLUSTER SUMMARY FORM

(Summary of Vaccination Status for all children falling in the Age group being evaluated for all 30 clusters in the sample)

(1) Age Group Being Evaluated: 12 to 17 months

(2) Date: 15/5/78 (3) Region: Costa

Cluster Number	Vaccination Cards	BCG		Polio 1		Polio 2		Polio 3		DPT 1		DPT 2		DPT 3		Measles		Tully Vaccinated
		0	+	0	+	0	+	0	+	0	+	0	+	0	+	0	+	
1	3	2	5	2	5	4	3	3	1	0	5	4	3	0	3	7	4	3
2	5	1	6	1	6	1	6	3	3	1	6	3	6	3	4	4	3	3
3	7	3	5	3	5	4	4	5	2	3	5	4	4	3	5	2	5	3
4	6	2	5	3	5	4	4	4	4	3	5	5	3	3	3	3	5	3
5	6	2	6	3	6	2	5	3	4	3	5	4	5	3	3	3	5	3
6	4	1	6	3	6	3	5	2	4	3	6	4	3	4	1	3	6	4
7	6	3	6	3	6	3	5	3	4	3	5	5	3	3	3	4	4	3
8	6	3	5	3	5	3	5	3	3	3	6	3	3	3	3	3	4	3
9	5	3	6	3	6	4	5	3	3	3	6	3	3	3	3	5	3	3
10	6	1	6	3	6	3	4	3	2	3	6	4	3	3	3	1	6	3
11	6	3	5	3	5	3	4	3	2	3	5	3	3	3	3	3	5	3
12	5	3	5	3	5	3	4	3	3	3	3	3	3	3	3	3	3	3
13	7	3	6	3	6	3	5	3	3	3	5	3	3	3	3	3	3	3
14	6	3	6	3	6	3	5	3	3	3	5	3	3	3	3	3	3	3
15	7	3	6	3	6	3	5	3	3	3	5	3	3	3	3	3	3	3
16	7	0	6	3	6	3	4	3	3	3	5	3	3	3	3	3	3	3
17	7	3	6	3	6	3	4	3	3	3	5	3	3	3	3	3	3	3
18	7	3	6	3	6	3	4	3	3	3	5	3	3	3	3	3	3	3
19	6	3	5	3	5	3	4	3	3	3	5	3	3	3	3	3	3	3
20	4	3	4	3	4	3	3	3	3	3	5	3	3	3	3	3	3	3
21	6	3	6	3	6	3	4	3	3	3	5	3	3	3	3	3	3	3
22	6	3	6	3	6	3	4	3	3	3	5	3	3	3	3	3	3	3
23	4	3	5	3	5	3	4	3	3	3	5	3	3	3	3	3	3	3
24	6	3	6	3	6	3	4	3	3	3	5	3	3	3	3	3	3	3
25	6	3	6	3	6	3	4	3	3	3	5	3	3	3	3	3	3	3
26	5	3	5	3	5	3	4	3	3	3	5	3	3	3	3	3	3	3
27	7	3	6	3	6	3	4	3	3	3	5	3	3	3	3	3	3	3
28	7	3	6	3	6	3	4	3	3	3	5	3	3	3	3	3	3	3
29	5	3	5	3	5	3	4	3	3	3	5	3	3	3	3	3	3	3
30	6	3	6	3	6	3	4	3	3	3	5	3	3	3	3	3	3	3
Sub-Total	179	47	167	64	150	88	126	113	101	66	148	92	122	118	96	75	139	81
Total		214	214	214	214	214	214	214	214	214	214	214	214	214	214	214	214	81

Figure 10: Worksheet for Exercise G

PROGRAMME COVERAGE EVALUATION FORM

REGION Coastal

AGE GROUP BEING EVALUATED 12 TO 17 MONTHS

MONTH: May

YEAR: 1978

(1) DOSE	(2) OBJECTIVE FOR PERCENT VACCINATION COVERAGE	(3) PERCENT VACCINATION COVERAGE ACHIEVED	(4) DIFFERENCE
BCG	80%	78%	-2%
Polio 1	80%	70%	-10%
Polio 2	75%	59%	-16%
Polio 3	70%	47%	-23%
DPT 1	80%	69%	-11%
DPT 2	75%	57%	-18%
DPT 3	70%	45%	-25%
Measles	80%	65%	-15%
Fully Vaccinated	70%	38%	-32%

COURSE MANAGER GUIDELINES

Ensure Public Participation

1. Distribute copies of the Introduction booklet (if not distributed previously) and the module.
2. Ask participants to turn to the Glossary on page 25 in the module. Explain that it includes important words from the module and should be referred to as often as necessary.
3. Explain how work on the module will be done:
 - a. Each participant will read the module and work through the exercises according to instructions in the text.
 - b. Each of the three exercises in this module includes group discussion. Ask participants to tell you individually when they are ready to begin each discussion so that you will know when the entire group is ready.
 - c. If resources such as sample immunization posters, pamphlets, or brochures are available, participants may look at them while they wait for group discussion to begin. If such resources are not available, they may take a break.
4. Explain that group discussions are very important because participants can learn from the experiences of others.
5. Encourage participants to ask questions. Tell them that you will always be available while they are working.
6. Tell participants to read the Introduction booklet (if they have not already done so), and to begin working on the module.
7. When participants are ready to begin discussions in Exercise A, B, or C, lead the discussion according to instructions in the following Discussion Guide and Sample Answers.

Ensure Public Participation

Exercise A

NOTE: You will need a large blackboard or poster for this exercise.

During this discussion you should assist course participants in (a) developing a master list of possible causes of non-participation for the situation described on p. 7 of the module, and (b) distinguishing the three categories of causes.

There are many possible causes of non-participation which the group may suggest. As long as the suggested causes do not conflict with the given population description, they should be accepted.

To lead the discussion:

1. Read the population description on p. 7 aloud to the group to refresh their memories.
2. Ask the participants to quickly review their Worksheets for Exercise A.
3. Ask participants to suggest causes they listed on their worksheets and explain why they listed them. (Try to include all participants in the discussion, but do not pressure anyone who does not want to talk.)
4. List the suggested causes on a blackboard or large poster.
5. Ask participants which category they think each cause belongs to: Lack of Information, Lack of Motivation, or Obstacles. Write the appropriate category next to each cause on the master list.
6. If a participant suggests that a cause belongs to an inappropriate category, discuss with the group why it belong in a different category. In some cases, it may be difficult to decide what category a cause belongs to; participants may be able to justify assigning a cause to more than one category.

Following is an example of a master list such as the one your group may produce. Remember, it is only an example. There are no exact answers in this exercise.

- a. People did not know the diseases were serious. 70% of population lives in rural areas and may never attend clinics. Children are not taught about diseases in school. (Lack of Information)
- b. People were discouraged from participating by traditional medical practitioners. Such practitioners may feel threatened by the health programme. (Lack of Motivation)
- c. Transport is difficult or expensive, and since population is largely rural, there may be long distances to travel to get vaccinations. (Obstacle)
- d. People knew diseases were serious but did not know they could be prevented. Influential traditional leaders have not provided this information. (Lack of Information)
- e. Previous immunizations produced bad side effects which frightened people. Side effects were not explained properly at vaccination sessions. (Lack of Motivation based on Lack of Information)
- f. People knew about the programme but did not know the exact times and places of vaccination sessions. (Lack of Information)
- g. Vaccinations were scheduled infrequently or at the wrong times for the people. (Obstacle)
- h. People did not know repeat visits were necessary. They were not given complete information at the vaccination sessions. (Lack of Information)
- i. People had bad experiences at the health clinic. Health staff may be of a different class than much of the population. (Lack of Motivation)
- j. People did not know about the programme. Information was not available in the local dialect spoken by half the people. (Lack of Information)

After your group has produced a master list of their own, you may wish to stimulate the discussion by adding the following question:

We have been discussing possible reasons why mothers did not bring their children for vaccination at all, or did not return for repeat doses. Suppose that the survey provided the following results for the 50 mothers who did fully participate:

Number of Mothers	Main Reason for Participating
10	Knew about danger of disease from friends and school
7	Learned about programme and schedule of sessions from posters
17	Encouraged to participate during pre-natal or other clinic visits
16	Encouraged to participate by friends and other family members

Does this information suggest or confirm possible reasons for non-participation of other mothers?

Exercise B

NOTE: You will need a large blackboard or poster for this discussion.

Before the discussion, re-order the causes of non-participation listed in Exercise A according to category. Leave enough space to write the suggested methods next to the causes of non-participation, as the participants have done on their own Worksheets for Exercise B.

During this discussion, the group should find at least one method of dealing with each of the causes of non-participation listed in Exercise A. There will probably be several possible methods of dealing with each cause on the group's master list. Remember that the suggested methods should be suitable for the population described on p. 7 of the module.

To lead the discussion:

1. Ask the participants to quickly review their Worksheets for Exercise B.
2. Display the re-ordered master list of causes of non-participation, and ask participants to suggest methods of dealing with the causes listed under "Lack of Information;" i.e., methods of informing parents. (Encourage all participants to contribute to the discussion, but do not pressure anyone who does not wish to talk.)
3. Discuss each suggested method of informing parents to determine if it applies to the cause of non-participation and is suitable for the population.
4. List at least one suitable method of informing parents for each cause of non-participation listed under "Lack of Information" on the master list.
5. When the list of methods of informing parents is complete, repeat steps 2, 3, and 4 for the other two categories: encouraging parents and removing obstacles.

Following is an example of a list of methods to go with the sample list of causes provided on the second page of this Discussion Guide. Again, this is only a sample list; every group's answers will be different.

Causes of Non-Participation (from Exercise A)	Methods of Increasing Participation
<p>Lack of Information</p> <p>People did not know the diseases were serious. 70% of population lives in rural areas and may never attend clinics. Children are not taught about diseases in school.</p> <p>People knew diseases were serious but did not know they could be prevented. Influential traditional leaders have not provided this information.</p> <p>People did not know about the programme. Information was not available in the local dialect spoken by half the people.</p> <p>People knew about the programme but did not know the exact times and places of vaccination sessions.</p> <p>People did not know repeat visits were necessary. They were not given complete information at the vaccination sessions.</p>	<p>Inform Parents</p> <p>Find special ways to reach the population. Teach children about diseases in school.</p> <p>Consult traditional leaders and involve them more in programme planning and operations.</p> <p>Translate information into all of the dialects spoken by the people.</p> <p>Use radio and word of mouth instead of written communication.</p> <p>Emphasize to the health workers the importance of giving full, correct information at the vaccination sessions. Ensure that the health staff knows what information to give.</p>
<p>Lack of Motivation</p> <p>People had bad experiences at the health clinic. Health staff may be of a different class than much of the population.</p> <p>People were discouraged from participating by traditional medical practitioners. Such practitioners may feel threatened by the health programme.</p> <p>Previous immunization produced bad side effects which frightened people. Side effects were not explained properly at vaccination sessions.</p>	<p>Encourage Parents</p> <p>Ensure that health staff includes workers with whom mothers will feel comfortable, or make a special training effort to get staff to treat mothers in a helpful, courteous way.</p> <p>Enlist the support of traditional medical practitioners so that they will encourage mothers to participate in the programme rather than discourage them.</p> <p>Emphasize to health staff the importance of explaining about side effects at the vaccination sessions. Ensure that the staff knows what to tell the mothers about side effects.</p>
<p>Obstacles</p> <p>Vaccinations were scheduled infrequently or at the wrong times for the people.</p> <p>Transport is difficult or expensive, and since population is largely rural, there may be long distances</p>	<p>Remove obstacles</p> <p>Consult with local leaders when setting up schedules for vaccination sessions. If necessary, schedule sessions more often in more locations.</p>

Exercise C

In this discussion, participants will discuss their own experiences. This discussion should be very open. Do not limit participants to the ideas and methods presented in the module, though you may show participants how their own ideas and experiences relate to the module. Ensure that participants realize that understanding problems and solutions from one area can help them deal with problems in their own area.

To lead the discussion:

1. Ask participants if anyone would like to discuss a participation problem that is occurring or that might occur in his/her own area.
2. Select someone to describe a problem and the population involved. (The problem should be one which has not previously been discussed.) If the description is not complete enough, get the other members of the group to ask questions about the situation.
3. Ask the group to suggest possible causes of the problem.
4. Let the participant react to these suggestions and choose the most likely causes from them.
5. Ask the group to suggest suitable methods to deal with the causes chosen in step 4.
6. Ask, "Are these methods practical?" "How would you use them?" "Are there less expensive methods that would work just as well?"
7. Ask, "How would you find out whether your methods are working?" "How would you know if people are participating?"
8. Ask, "How would you determine who is participating and who is not?" "What would you do when you found out what groups of people were not participating?"
9. Repeat steps 2-8 for other participation problems which the group wants to discuss. You need not follow the above guidelines strictly. You may wish to concentrate on steps 2-5 in order to deal with as many problems as possible in the time available.

**WORLD HEALTH ORGANIZATION
IN COOPERATION WITH
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PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL**

